

# the American Perfumer and ESSENTIAL OIL REVIEW

COSMETICS · SOAPS · FLAVORS

EST. 1906

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& Essential Oil Review

## Editorial Comment

### Increased Cosmetics Sales Expected

The Department of Commerce, through Miss Frances M. Coston, has issued a statement that the average sum spent in beauty shops between 1933 and 1939 doubled, is still climbing, and is not apt to be effected by any foreseeable occurrence.

There has been an upswing in trading, according to the War Shipping Administration, with the West Coast of South America, and trade has been resumed with most of the countries adjacent to the Mediterranean.

We reported S. L. Mayham's statement that the cosmetics industry has not begun to reach the saturation mark in the June issue.

Shortages in a great many items seem to be the major controlling factor in holding down volume. Apparently this will continue until the end of the war in Asia, and then records will be broken all over the place.

### The Recognition of Merit

This column has from time to time devoted space to inter-labor relations. We have done so because we feel it to be important. The result of research conducted by Benge Associates may come as somewhat of a surprise to some of our readers.

Eighty-nine per cent of the employees in different types of industry recently expressed themselves as being more interested in being told, "How well am I doing my job?" than they were in their rate of pay.

While the contents of the pay envelope are as much a necessity to the average employee as eating and sleeping it is not the number one factor in determining the attitudes of employees toward the job. Mr. Benge stated that his company had never had an instance where employees ranked their rate of pay first. Job security, treatment by supervisors, vacation and holiday privileges, and extra pay such as bonuses were rated higher than actual base pay.

Sound labor policies are more important at this time than ever before.

ONE OF 22 DOW CHEMICALS USED BY THE COSMETIC INDUSTRY

## settling the problem of settling pigments



Behind the well-known story of water extendable paints which have become so popular in recent years are important answers to development problems in many products.

Paint manufacturers face several problems in making water paints . . . pigments must not flood or settle and cake . . . emulsions must be stable . . . undue penetration of porous surfaces must be avoided . . . good adhesion to paper, wood, cement, and other surfaces is a necessity . . . good brushing characteristics are important.

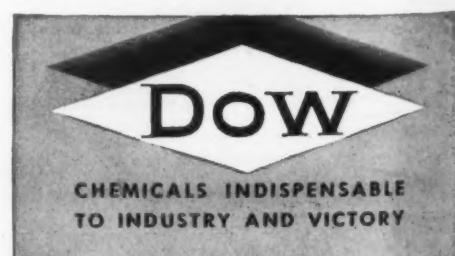
The Dow Chemical Company has the answer—Methocel—a cold water soluble cellulose ether available in a wide variety of viscosity types. Methocel serves as a pigment disperser, thus minimizing pigment flooding, settling, and caking . . . its protective colloid action insures emulsion stability . . . its controlled viscosity overcomes undue penetration and gives excellent brushing characteristics.

These valuable properties of Methocel, which contribute so much to water extendable paints, may prove valuable to you, too. Write us for more information about Methocel.

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# Methocel

*Water Soluble Dow Methylcellulose*



# Desiderata

by MAISON G. deNAVARRE



## CLOSURE SEALS

Some of you may have seen the aluminum seals used to make tamper-proof bottles of vaccines and hypodermic solutions. The idea can be used the same way, decoratively, to seal jars and bottles of cosmetic preparations to prevent tampering and possible substitution. The cost is low. The seals come partly prefabricated, then fitted on by pressure, right on the bottle or jar.

While on this subject, everyone has drying out problems in creams, lotions and emulsions, especially in various kinds of creams. The use of metal foil, special paper, plastic or parchment disks that either lay directly on the cream surface or on the lip of the jar, reduces moisture loss quite substantially. Average increase in price is in the vicinity of one-fourth cent per package, which is cheap insurance. These disks were unavailable for quite a while, but they are now again on the market.

## CREAM SHAMPOO

Almost daily there are one or more inquiries for data on cream shampoos. The item is one of the liveliest on the market today. Yet never more so than now is it so difficult to get the necessary authentic detergents with which to make such a shampoo. Inquirers probably think they are getting the brush-off, but such is not the case. There just isn't any worthwhile wetting agent available that can be used in such products. The war you know. . . .

Even in making a cream shampoo from ordinary soap ingredients, one finds it difficult to get enough of the right kinds of fatty acids to do the job. Yet this is the one avenue left

open. Utilize a good shaving cream formula, adjusting the consistency and soap content so you will have either a cream or liquid product, and you have a cream shampoo that is excellent indeed. There are several on the market made just this way.

## CONTROL AND ANALYSIS

A lot of people are asking about the series of articles that have been running in the back of *THE AMERICAN PERFUMER* . . . whether or not they will be published in book form. The fact is, these are not articles, but the serialized version of a book. So *Production Control and Analysis of Cosmetics* will appear in book form, in due course. If you are afraid you will forget or miss the book, place your order now. Only four chapters are to be published in *THE AMERICAN PERFUMER*. The balance of the material will appear in the book, showing in table form just how the different Physical and Chemical methods are used to determine the composition of a product. It turned out to be a bigger job than was expected. That means a little delay, but it must be up to date, completely workable and useful if it is worth publishing.

## HORMONES

Some work the F.D.A. was doing on routine checking of the manufacture of estrogenic hormones from pregnant mares' urine disclosed considerable variation in composition of the isolated estrogen fraction. So, now, the F.D.A. requires that the *natural estrogenic hormones* used be further described in language similar to the following: "*This product contains — International Units of*

M. G. DeNavarre at work in his laboratory

*natural mixed estrogens consisting principally of estrone, with minor portions of estradiol and other estrogens*" or "*contains natural mixed estrogens consisting of estrone, estradiol, equilin, equilenin and hippulin*." All this applies to such naturally derived extract made from pregnant mares' urine, without subsequent reduction of the estrone which normally comprises at least 75 per cent and more often 85 per cent of the whole. Because of the increased activity of estradiol over estrone (from 5 to 7 times more), some manufacturers reduced the estrone to estradiol either by plan or by mistake, thus making one gram of the isolated estrogens substantially more active when determined by the International method of testing. Other manufacturers fortified naturally derived estrogens with estradiol, without stating it on the labeling. Now the truth must be told. So, if your hormone oil has been fortified with estradiol, you will say on your label that "*this product contains mixed natural estrogens (estrone, estradiol, equilin, equilenin and hippulin) fortified with estradiol*" or "*contains a mixture of estrogens consisting principally of estradiol with minor portions of estrone and other estrogens*" as the case may be. These are not F.D.A. approved phrases, but give you the idea of how you must enlarge on the phrase "mixed natural estrogens."

## PROPYLENE GLYCOL

It is announced that a more highly

WHEN TUBE METAL IS UNDULY  
EXPOSED TO  
CORROSION



*Sheffield Process* TUBES



The New England research staff has scored a notable achievement! They have made possible the use of convenient collapsible tubes for packaging many products that heretofore could not successfully be packed in these preferred metallic containers. Now, a series of *more than fifty inner coatings* under our exclusive trade name **VINICOTE**, are available. Each one possesses different characteristics, designed to effectively overcome chemical reaction of ingredients to tube metal. *VINICOTE inner coatings* are evenly and economically applied by automatic machinery of our own design. If "VINICOTE" inner coatings and tougher "Sheffalloy" Sheffield Process Tubes are strangers to you, by all means get acquainted with them now! Write for information.

**NEW ENGLAND COLLAPSIBLE TUBE CO.**

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THE WILCO COMPANY, 6800 MCKINLEY AVE., LOS ANGELES 1.

deodorized and a practically tasteless grade of propylene glycol is now available especially for use in flavor work. With its excellent solvent properties for flavors and strong preservative action, propylene glycol of this improved quality should be an important new tool for use by flavor men.

#### DDT IN COSMETICS

This title is misleading. But DDT has some use in cosmetic plants when incorporated in sprays for walls and screens to keep down the fly pests. Although the material continues tight, it will ease shortly. For the purpose just mentioned, you will be pleasantly surprised at its efficiency. The effect lasts several weeks at a time. Two or three applications throughout the summer will do the trick.

#### ANTIPERSPIRANTS

In recent months, scads of mail has come in regarding the formulation of antiperspirant creams. About half of the requests are reasonable. But the other half are not. Often they start off by saying "we want to make an antiperspirant cream, powder or liquid that is better than anything on the market and will not irritate skin, dry in the jar, crystallize, and be absolutely safe on clothes." Brother, that is an order that experts by the dozen are trying to solve—and they have solved only parts of such an imposing list of properties, desirable or otherwise. It

is good to know that the inquirer has such high standards for his anticipated product, but little does he realize that this \$64 question is actually a half million dollar question. Even if we knew all the answers—it is quite a lot to demand. Since we don't know all the answers, we are forced to decline the opportunity to serve subscribers except in a very general way. We can't take on a research project that may take years to complete—if ever, to answer such inquiries. In addition, who is going to pay the freight? You can't get it out of the subscription price!

We try to help everyone who writes in requesting information. We may not always be as helpful as we like to be because we probably don't see the problem in the same light you do. But we do the best we can. We ask you to be reasonable in your requests, too. If it is possible to help you, please give us the chance. But ask us something "possible."

#### A.M.A. VENDETTA

Looks like the old fued is on. The A.M.A. was not satisfied with the decision in the last battle with one hormone cream maker about seven years ago, so it goes to work on hormone cream makers as a whole. The mud-slinging has begun. You'd think highly intelligent people could settle their differences of opinion in a gentlemanly way, but I guess nature is stronger than enforced training. It will be interesting to watch the outcome.

*separating oleic acid from a composition of 60 per cent liquid vaseline, 30 per cent mineral oil, 5 per cent castor oil? What is the formula for a shampoo with the saponified castor oil base? Please accept our thanks for your assistance.*

D. A. R.—FLORIDA

A: By using a selective solvent such as alcohol, you can remove the oleic acid and the castor oil together. Upon evaporation of the alcohol, you can then separate the oleic acid from the castor oil by using a light petroleum ether. A small amount of castor oil will also come out and the proportion will depend largely on the amount of oleic acid present. Another method to do this would be to neutralize the oleic acid with an alkali and separate the castor oil with chloroform, ether or some other volatile solvent. The shampoo containing castor oil may consist of 20 parts of cocoanut oil, 5 parts of castor oil, 12.4 parts potash 50° Bé, 7½ parts glycerine or propylene glycol, 55.1 parts water. Saponification is performed in the usual manner.

#### 561. SOAP SHAMPOO

Q: *Is there any way of treating regular soap shampoo to make it neutral?*

W. D.—NEW YORK

A: The soap shampoo may be neutral while in the bottle, but it will probably hydrolyze to an alkaline pH when diluted with water when used on the scalp. Triethanolamine is a good buffer and will keep the alkalinity at the lowest point. Boric acid is also a good buffer, but you must use it carefully.

#### 562. PERFUME SOLUBILIZERS

Q: *Please let us have information about the solubilizer mentioned in the April issue for making perfumes and flavorings. We are also looking for a good household glue to mend broken glass, chinaware, etc. Please also give us a formula for a cheap toilet water, one without alcohol.*

M. C. H.—MINNESOTA

A: The source of supply for the solubilizer is sent to you under separate cover. You can also use it for making a cheap toilet water. Use at the rate of from 3½ to 6 parts solubilizer for each part of perfume compound used. A little alcohol will help. We are not in position to give you the formula for a household glue as it is entirely out of our line.

## QUESTIONS AND ANSWERS

#### 559. HAND CREAM FORMULA

Q: *We would like to produce more "chip" in a hand cream formula. It has been suggested that myristic acid replace stearic acid for this effect. Do you know of any way to increase this "chip" without increasing the myristic acid?*

P. M.—INDIANA

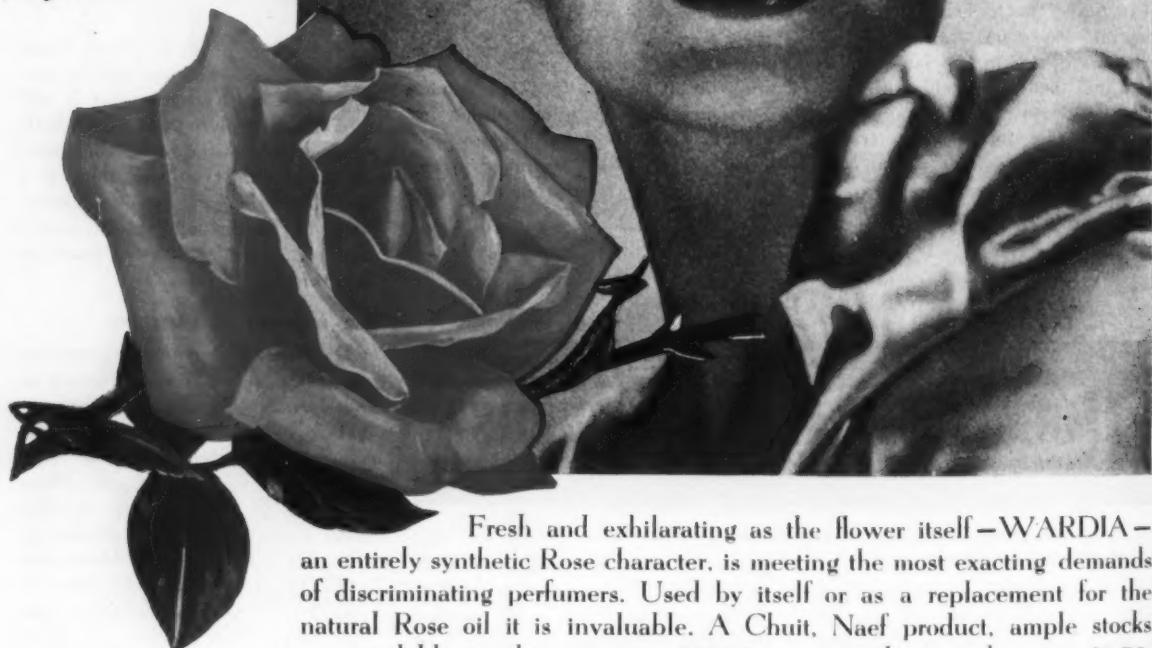
A: We do not know what you mean by "chip." If you mean to in-

crease the body or consistency, then we know of only one way to do it at the moment and that is to increase the solids which may be stearic acid or some other higher alcohols or spermaceti. If you want to give us more information on the subject, we will be glad to try to help you.

#### 560. SEPARATING OLEIC ACID

Q: *What is the best method of*

*See Wardia*



Fresh and exhilarating as the flower itself—WARDIA—an entirely synthetic Rose character, is meeting the most exacting demands of discriminating perfumers. Used by itself or as a replacement for the natural Rose oil it is invaluable. A Chuit, Naef product, ample stocks are available in this country—\$58.00 per pound—a trial ounce \$3.75.

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## What's the Truth About Odor?

*Sense of smell is a matter of brain development . . .*

*Animals possess the ability to distinguish an individual odor . . . Perfumers are trained to ignore total scents*

by CHARLES V. SPARHAWK

FROM time to time there have been articles in the magazines regarding ODOR. They concern "the sense of smell." Many explanations have been given on the subject of how it performs. Books have been written on the matter. Some writers mention delicate nerve buds in the nose cavities, whereby odors are collected in sensitive receptive passages. Others suggest electrons and electrical magnetism as the force that distinguishes different reactions they call vibrations. Each author has a different conception as to just what constitutes scent.

But there is one aspect of the discussion no one seems to have stressed. It certainly deserves consideration. We cannot ignore specific facts that are familiar to most laymen, even though the scientists pass them up as unimportant. If these truths are sound, we must accept them.

### SCENT A MATTER OF THE BRAIN

The point is: We do not smell with our nose! Perfumers boast of their fine noses for scent and claim their nasal passages superior for judging perfume and identifying delicate aromas, but that is false! It is no more true than were we to say: "We think with our mouths." SMELLING is entirely a matter of the BRAIN. To elucidate this statement, medical men will tell you if a person is hit on a certain spot on the head, that indi-

vidual will never smell again. This SPOT, be it remembered, is not on the nose, but in the head. This fact has been used for years by surgeons in locating the exact place to operate when a person has a tumor or cancer-in-the-head. They ask the patient if he or she can smell. If he says he cannot detect odors or the ability is weak, no further diagnosis is necessary. The doctors say they will operate immediately. They do not need to delay, for with their calipers they can measure the precise position where pressure is being exerted. It is that special spot, where the brain-for-smelling functions, that is affected.

### BRAIN FUNCTIONS FOR SIGHT

We can illustrate in a different manner. It is true a certain portion of the brain likewise functions for sight. People say SIGHT is a question of the EYES! This is also a fallacy! The eyes are only windows. The image projected by the camera is not in the lens at the front—but on the sensitized portion at the back that records the picture on a film. In fact, it is possible to take a photograph with merely a pin-hole replacing the glass condenser we call the lens. This proves it is the receiving end that holds the image—not the refractive point.

The moving picture apparatus demonstrates this. Its entire mech-

anism is based on known facts about the brain and how it performs. In projecting, actually each picture is momentarily stopped by the shutter passing before the transparent film—while another impression in its frame is being drawn into position. But the brain does not see these swift changes of light and darkness. Only the light flashes remain impressed on the brain. There is a cessation of light—no one can deny. While the eye does reflect these stoppages, the brain does not register them. These, however, the moving picture camera does take independently, reproducing them not blurred, but clear and distinct individually on the halted negative. But the audience viewing the picture is under the concept there is no interruption of the scene. It produces the impression of movement—an optical illusion! It proves the brain does not work as fast as sight. Magicians utilize this same fact, "The Hand is Faster than the Eye," to deceive their audience in their sleight-of-hand tricks.

There is a question: "When we dream, do we see color—or just black and white? Does our subconscious mind detect the variations of shades we see in true vision? Likewise—can odor be distinguishable in sleep? Can our subconscious brain register smell—without really experiencing it?

There is an instance of a young

woman who was afflicted with an allergic condition for roses. She could not experience their odor without an agonizing attack of coughing and sneezing that made their presence impossible. When the season for their blossoming arrived, she had to go where she would not be exposed to their aroma. Her friends were aware of this fact and should there be a dinner party during the winter months even the hot house variety were tactfully omitted.

One evening the young lady attended a reception, where distinguished persons were invited. As she approached the receiving line and began shaking hands with the different individuals, she was unexpectedly confronted by a woman with a gorgeous corsage of bright red roses. She was instantly seized with a terrific attack of choking, exploding coughing and running of the eyes. Her friends sympathetically came to her rescue and hurried her away—while the innocent cause of the distressing scene volubly expressed her sincere regrets. The sudden interruption naturally attracted attention to the bouquet of beautiful flowers, which indeed made a charming display. But the wearer promptly unfastened the bunch, shaking them to show they were made of paper, while the leaves were green cloth. They contained no odor nor smell whatsoever! They were entirely artificial.

#### ANIMALS' RANGE OF SCENT

A different ability of brain power to detect scent is distinguished in the case of animals. The foxhound follows the fox, the wolfhound the wolf and the deerhound the deer. If these trails cross or are passed over by other animals—or possibly a human track, the foxhound does not change to the deer, nor the wolfhound to the fox. Each keeps after his own animal. But the reader can put his nose to the ground, what does he smell? He detects no odor! In the same manner a bloodhound follows a certain person, picking him out of a crowd. (This latter requirement is the final test in field trials of bloodhounds. They must identify the individual amongst many people.) Yet to the human nose there is no difference in the scent between separate persons. But nevertheless we cannot deny the same scent enters the dog's nose as does the man's. It is there-

fore a matter of brain development. Even should it be possible to remove the nose of a dog and graft it onto a human face, does one believe it would enable that person to detect the odors a dog can distinguish? The reason would be the man does not have the dog's brain, even though his may be superior in other respects.

It is another truism our range of scent corresponds with the variations in our ability to smell. Insects have a range of their own for odor that in most instances no man can identify.

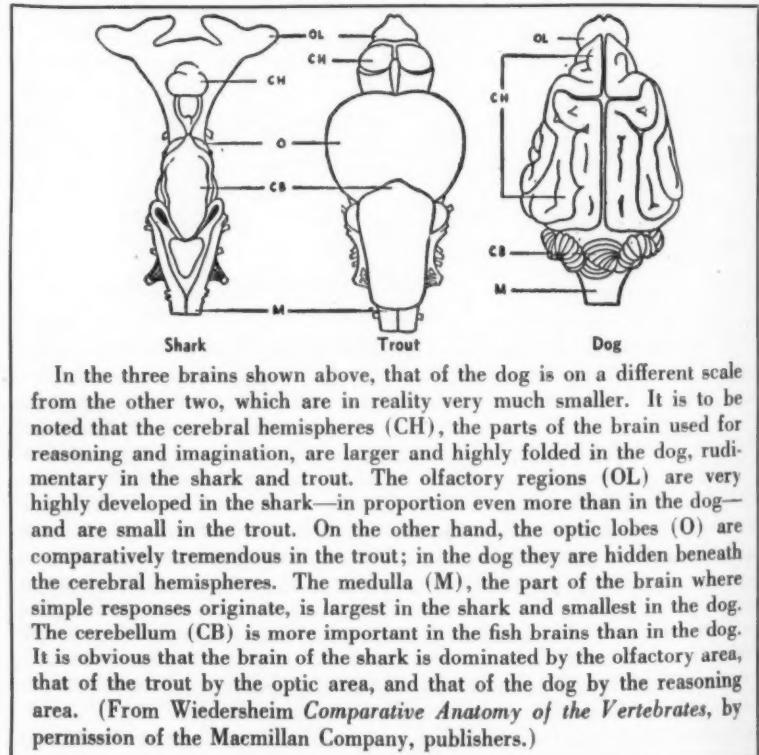
*"Here comes the happy, bounding flea;  
You cannot tell the he from she,  
The sexes look alike, you see—  
But she can tell and so can he."*

As an instance that insects do have odors, we can mention certain cockroaches which have a strong, persistent stink when trod upon and crushed. We need only mention an animal that produces more musk (in proportion to its size) than the musk deer, musk ox or other musk producing creature. It is familiar to the highest as well as the lowest classes. Our homely bedbug has more musk than any other living organism. When we experience this pest with such a dank odor, we wonder for what purpose Nature endowed it with

such a smell. Perhaps it is for the reason these special insects live in beds, cupboards and places above the floor. They use it to attract the opposite sex to their lairs! Butterflies in a flutter of yellow and white, as they circle and entwine their movements certainly are attracted by scent. Someone took their bodies, extracting from them with solvent an odor they identified as geranium. This may have been from flowers they had been feeding upon—as most animal odors are quite different from their food or living quarters. But whatever the aroma they give off, no question but that the brain of these little things recognize their sexes.

#### FISH HAVE SENSE BUDS

Because fish are a cold blooded animal and live in water, the question of their sense of odor is interesting from the brain development viewpoint! Fish do have sense buds, but they are merely open sacks without opening to the throat or gills. They are tiny holes that enter just below the skin. In some catfish they are located all over the body and these remarkable creatures actually smell with their tails as they lay submerged in mud and dark waters. Their main sense organs moreover are on the



In the three brains shown above, that of the dog is on a different scale from the other two, which are in reality very much smaller. It is to be noted that the cerebral hemispheres (CH), the parts of the brain used for reasoning and imagination, are larger and highly folded in the dog, rudimentary in the shark and trout. The olfactory regions (OL) are very highly developed in the shark—in proportion even more than in the dog—and are small in the trout. On the other hand, the optic lobes (O) are comparatively tremendous in the trout; in the dog they are hidden beneath the cerebral hemispheres. The medulla (M), the part of the brain where simple responses originate, is largest in the shark and smallest in the dog. The cerebellum (CB) is more important in the fish brains than in the dog. It is obvious that the brain of the shark is dominated by the olfactory area, that of the trout by the optic area, and that of the dog by the reasoning area. (From Wiedersheim *Comparative Anatomy of the Vertebrates*, by permission of the Macmillan Company, publishers.)

end of long tendrils they stretch out to locate food and tell the approach of enemies. The brains of sharks and catfish are highly developed for smell, while the trout has quite the inferior brain for that reaction. But the trout's brain for sight is exceedingly developed, which explains its ability to see flies and other food on the surface of the water. Sight in the shark is represented by a small area. This may explain why sharks will often approach alongside a boat, when they can be gaffed or struck by an oar. Experiments made by stuffing their sense sacks with cotton-soaked-vaseline made it impossible for sharks even to identify food.

#### OLFACTION IN SNAKES

The mechanism for olfaction in snakes is rather unusual, in that the nerve endings are located in paired depressions in the roof of the mouth—called the organs of Jacobson. Odorous particles are picked up by the forked tongue and carried to these indentations and then transmitted to the brain. This action of the snake's tongue is not for attack or spreading its venom, which many uninformed observers may have wrongly deduced. It is only a means of identification.

When a man and his dog enter a Zoological Garden there are two different reactions. The man smells but one odor, the whole animal aggregation. The dog smells each individual scent. If there should be a cat in the monkey house, the dog will be immediately aware of the fact and will ferret it out, because his brain will tell him it is not a monkey. By their peculiar individual developments each has his separate type of brain.

#### PERFUMERS IGNORE TOTAL SMELL

So with the perfumer. If he has become an expert and is really skilled in his profession, he has developed his brain—not his nose. Just like the dog's mentality, he has trained his to identify the individual ingredients of a perfume—ignoring the total smell. And by that deciding factor he can pick out the materials required and reject what are not. He can't increase the capacity of his nose to absorb odors, but it can be accomplished by development and exercise of his scent organ—the brain! It is the brain capacity that will make him a good or bad perfumer—not the length or

largeness of his nostrils or his nose.

This function of the brain to recognize odors has other virtues. We speak of Black Narcissus, Blue Grass, Green Violet as odors, when they do not exist. They are purely imaginary scents built up by mental pictures! The originators do not claim to be copying any natural flower or odor. In fact, gardenia, sweet pea and locust blossom and some other flower aromas are not true duplications of the real blossom. In some instances the beautiful originals have rather disagreeable odors. But our brains have been accustomed by training to accept a certain perfume as representative of them. Can any one give an accurate description of just what chypre, trefle, amber, mousse de chene smell like? They are at loss—because there is nothing in their brain recollection to which they can compare these odors. They are clearly compounds that have become recognized as basis-for-perfumes. They are in truth the children of their fabricators.

#### PERSONALIZED PERFUMES

Then, too, our brains link up certain odors with associations. We hear a lot about "personalized perfumes." Their purpose is to embody personality with a special perfume. As a small boy the writer recalls an aunt, who always used violet fragrance and invariably wore violet colors. She had her dresses in that shade, while her hats were to match with a generous decoration of violet flowers or corresponding binding on them. Even her veils were violet. Her eyes were deep blue, but with the frame of violet around her, she always stood out as "the violet lady." Another friend in later years was named Rose. Her sweetness and personality were the substantial kind one instinctively associated with the familiar rose so common in gardens and trailing over the trellis and fences of old fashioned homes. Her name and similarity of character to her replica in Nature always came to mind when smelling that perfume. Rose has become fixed in my brain with her, as the perfume of violet has with the other individual.

One cannot disassociate the two aromas from their wearers, when their characters personify so truly their choice of them for their ideals; and as a result these two odors seem

like "old friends" than perfumes.

My own parents had a romantic attachment for arbutus. There was no secret about it. My mother and father had become engaged when they had gone "in the early Spring" to gather these delightful small flowers with their sweet, intriguing aroma. I remember each Spring my father would bring her gay bunches of arbutus, which my mother would put in vases and display around the house. While she had lost her youthful beauty, and with the cares of a large family sentimental thoughts may have become somewhat subdued, all the children sensed the youthful memories these particular flowers gave them. I am sure the perfume of arbutus had a warm spot in their hearts, even though such luxuries were not common in our household. The most expensive imported perfumes would have fallen flat besides these simple, unostentatious flowers that could bring back so vividly these personal associations of former days.

No! Perfume is not a matter of the nose! Perfume is far deeper. Perfume strikes the heart like refreshing sunlight, melodious music and romantic moonlight. It raises us out of our humdrum existence of every-day life. It is like wine that intoxicates our imagination and fills our brain with spiritual exaltation.

Is it surprising women pick fragrance as their weapon against man's strength? Man never has acquired immunity against perfume—and never will; because his brain will always be sensitive to that appeal, however much he may protest. It is a form of charm he is unprepared to fight.

We need your help! Owing to the paper shortage, we have not been able to print as many copies of *THE AMERICAN PERFUMER* as we would have liked. Consequently, we are unable to fill the demand for back issues—dating back to 1941. Do you have any copies that have served their purpose? If so, you will be doing us, and our readers, particularly those in foreign countries, a very real service by sending them in. We will be glad to defray charges—express or postage.

# A Survey of Spanish Essential Oils

*The composition and use of oil of rosemary . . . Production, distillation and the chemistry of sage oil . . . Rosemary and sage oils are used primarily for the scenting of soaps*

by DR. ERNEST GUENTHER

Chief Chemist, Fritzsche Brothers, Inc., New York, N. Y.

Copyright 1945 by E. G., N. Y.

## Oil of Rosemary

**olefinic terpenes (?)** Gildemeister and Stephan<sup>3</sup> also reported that rosemary oil probably contains some olefinic terpenes such as occur in oil of bay.

**cineol** Weber<sup>4</sup> isolated cineol from the fraction b. 176-182° as dihydrochloride compound. Cineol was characterized by the preparation of dipentene tetrabromide m. 123.5-124°, and of dipentene dihydroiodide m. 78.5-79°.

According to Mosca and Papocchia,<sup>5</sup> Pellini and Morani,<sup>6</sup> and Puxeddu,<sup>7</sup> the cineol content of Italian rosemary oil ranges from 17 to 32 per cent.

**dipentene (?)** When passing gaseous hydrogen chloride through an ethereal so-

lution of the fraction b. 171-176°, Weber, as mentioned, obtained dipentene dihydrochloride m. 49-50°. This compound may have originated from cineol or from dipentene. Since the fraction b. 171-176°, according to analysis, contained substantial quantities of terpenes, it is possible that the dihydrochloride was formed from dipentene.

Observed in rosemary oil first by Lallemant,<sup>8</sup> Later de Montgolfier<sup>9</sup> showed that the camphor present in rosemary oil consisted of a mixture of the d- and l- modification.

Pellini and Morani<sup>10</sup> reported that an oil distilled in Sicily contained about 17 per

cent camphor.

Rutowski and Wino- gradowa<sup>11</sup> found l-camphor in a rosemary oil from the Caucasus.

**borneol, free** Borneol was first observed in rosemary oil by Bruylants,<sup>12</sup> who isolated it, together with camphor, from the higher boiling fractions. Gildemeister and Stephan<sup>13</sup> determined the borneol content of two oils by acetylation and found 16.8 per cent and 18.8 per cent, respectively. These authors, however, assumed that the oil contained no other alcohols, geraniol or linalool, for instance.

Borneol is present in rosemary oil in free form and as bornyl acetate (2.7 per cent). Haller<sup>14</sup> suggested

Continued from the previous issue.



Distillation of rosemary in Spain



Farmer distillation in Spain

separating camphor from borneol by heating the mixture with succinic acid and converting borneol into the hydrogen succinic ester.

According to Haller, both camphor and borneol occur in rosemary oil as a mixture of the two optical isomerides.

**sesquiterpene** Haller also reported about the occurrence, in the high boiling fractions, of a sesquiterpene, probably caryophyllene which was characterized by the preparation of the nitrosochloride m. 165-166°, and the nitroso m. 156°.

#### USE

Oil of rosemary serves in certain medicinal preparations (dose 3 to 6 minims or 0.2 to 0.4 cc.) and as an ingredient in rubefacient liniments.

The bulk of rosemary, however, is used for the scenting of soaps and technical products, also for the denaturing of alcohol. The oil serves furthermore in room sprays and inhalents.

3. *Ibid.*  
 4. *Liebigs Ann.* **238** (1887), 89.  
 5. *Ann. chim. applicata* **7** (1923), 326.  
 6. *Ibid.*, **7** (1923), 97.  
 7. *Ibid.*, **15** (1925), 170.  
 8. *Liebigs Ann.* **114** (1860), 197.  
 9. *Bull. soc. chim.* **II**, **25** (1876), 117.  
 10. *Ann. chim. applicata* **7** (1923), 97.  
 11. *Rieckstoff Ind.* **1926**, 218.  
 12. *J. prakt. chim.* **IV**, **29** (1879), 508.  
 13. *Arch. Pharm.* **235** (1897), 586.  
 14. *Compt. rend.* **108** (1889), 1308.

#### Spanish Sage Oil

The oil distilled from *Salvia lavandulifolia* Vahl. must not be confused with that from *Salvia officinalis* L. growing in Dalmatia, or with the oil from *Salvia sclarea* L. cultivated in Southern France and Southern Russia.

#### PRODUCING REGIONS

*Salvia lavandulifolia* occurs wild in the Spanish provinces of Granada, Murcia, Almeria and Jaén, main producing center of the oil being Granada.

#### COLLECTION OF THE PLANTS AND DISTILLATION

The collecting of plant material and distillation closely resembles that

of Spanish spike lavender. The period of distillation extends from May to October.

Ten arrobas (1 arroba = 11.5 kilos or about 25 pounds) of plant material yield about one kilo of oil; in other words the yield of oil is about 0.88 per cent. Distillation of one charge requires four hours.

#### PHYSICO-CHEMICAL PROPERTIES

The physico-chemical properties of Spanish sage oil vary considerably with soil, climatic and weather conditions.

Samples of genuine Spanish sage oils obtained by the author in various producing regions and analyzed in the New York laboratories of Fritzche Brothers, Inc. had the following properties:

	Spec. Grav. at 15°	Optical Rotation	Total Alcohol Content <sup>1</sup>	Ester Content <sup>2</sup>	Solubility at 20°
Murcia . . . . .	0.935	+22°33'	27.8%	15.3%	Not clearly soluble in 10 vol. 70% alcohol; clearly soluble in 1 vol. 75% alcohol up to 10 vol.
Maria . . . . . (Almeria)	0.933	+20°57'	23.9%	12.6%	Insoluble in 70% alcohol; clear in 1.5 to 3 vol. 75% alcohol; soluble in 1 to 2 vol. 80% alcohol, opalescent with more.
Almaciles . . . . . (Granada)	0.936	+23°42'	23.0%	13.4%	Insoluble in 70% alcohol; soluble in 1.5 to 3.5 vol. of 75% alcohol; soluble in 1 to 3 vol. of 80% alcohol, opalescent with more.
Jaén . . . . .	0.918	-3°35'	16.9%	7.5%	Insoluble up to 10 vol. of 70 and 75% alcohol; soluble in 1 to 1.5 vol. 80% alcohol, opalescent with more.

It is interesting to note that oils distilled in the province of Jaén differ in regard to physico-chemical properties and odor from those distilled in Murcia, Almeria and Granada.

Spanish sage oil has a pronounced camphoraceous odor with a by-note of cineol.

Spanish sage oil is sometimes adulterated with oils of camphor, eucalyptus, steam distilled pine oil or fractions of these oils.

#### TOTAL PRODUCTION

Total yearly production of Spanish sage oil, previous to the outbreak of the Spanish Civil War in 1936, varied from 4 to 7 tons. During this war, production fell off considerably but in 1945 about 10 tons of sage oil will probably be distilled in Spain.

#### CHEMICAL COMPOSITION

The chemistry of Spanish sage oil

(*salvia triloba* L.) was investigated by Dorronsoro.<sup>3</sup>

Fractionating an oil originating from the province of Granada Dorronsoro obtained, at 710 mm. pressure, the following fractions.

164-170°	9.5%
170-180°	38.0%
180-190°	15.3%
190-203°	8.0%
203-205°	25.0%
Residue	4.0%

Dorronsoro established the presence of the following constituents: *pinene* (?)

The melting point of pinene nitrosochloride and pinene nitrolbenzylamine did not remain constant on recrystallization which indicates the presence

of another terpene, possibly *dipentene* (?) *camphene* (?)

Presence probable. The fraction b. 170-180°, when treated with potassium permanganate gave a white substance m. 135-136°, evidently camphene camphoric acid . . .

Identified as resorcinol compound. The oil contained a large amount of cineol.

*linalool* was characterized by oxidation to citral.

Part of linalool occurs in the oil as acetate, and as isovalerate.

#### cineol

#### linalool

#### linalyl acetate

#### linalyl isovalerate

*d-camphor*

m. 178°; oxime  
m. 120°.

*thujone*

Investigating an oil distilled in Syria from *salvia triloba* L., the Schimmel chemists<sup>4</sup> prepared the semicarbazone of 1-camphor and found in the methyl alcoholic solution another semicarbazone m. 162°. On decomposition with dilute sulfuric acid, an odor of thujone developed.

**USE**

In Spain sage oil is occasionally employed for adulterating spike lavender oil. When exported it serves primarily for the scenting of soaps, usually in combination with lavender, spike lavender and rosemary.

1. Calculated as linalool.

2. Calculated as linalyl acetate.

3. Mem. Acad. Cienc. Exactas Madrid, 29 (1919).

4. Ber. Schimmel & Co. Oct. 1915, 42.

(Editor's note: conclusion of article)

### Soap Bartered in Prison Camps

Prisoners of war, back in Britain after five years of experience in enemy hands, have told how soap sent in the Red Cross parcels became a chief medium of barter between the prisoners who worked in factories and farms, and the Polish and other workers in the area. Even the German guards and German citizens were all in the racket which riddled every commodity obtained by the soldiers in parcels which was in short supply in civilian Germany.

Conditions varied considerably but the general experience was that the guards or the villagers would barter food or commodities wanted by the prisoners for soap or chocolate which were very short.

The soap issued by the Germans to British prisoners was named 'RIF' and had a gritty, chemical constitution which proclaimed its presence to high heaven as soon as a 'RIF' user approached. This soap was useless for toilet purposes and would if used consistently, have lifted the skin off the face of the user. The Polish and German people in the prison camp areas in Poland

were forced to use it as it was the only available type but they took every opportunity to barter for the British and American soaps which came in the Red Cross parcels. In this way the prisoners got radio tubes, bread, anything which was in short supply in their camps, the guards generally assisting.

The Polish women were particularly anxious to obtain good toilet soap and willingly exchanged bread for soap—bread being a scarce commodity in the camp from which this information came.

The personal issue to prisoners in this camp over the five years of war in Poland was one small cake of 'RIF' per month for washing, and one small cake of shaving soap. The latter has been described as being passably usable and as being definitely better than the washing soap which was regarded as containing a great deal of sand or other gritty filler to make good the shortage of fats. But for the soap included in the Red Cross parcels, prisoners would have been in a very difficult position.

The shortage of soap was such that over the five years, men sending their laundry out of the camp to be washed by the Polish housewives had to supply some of their precious soap for the purpose, and many of the laundrywomen took this type of work merely to share in the superior soap which they thus obtained.

### British Soap Ration Reduced

The British soap ration has been reduced by one-eighth of the present allocation, in the present paring down of rationed goods to meet the world shortages. There are several exceptions principally babies and young children, soap for industrial purposes, laundry and wash women, pithead and other baths remains at its present level.

The ration cut operates as of May 27 when only three quarters of the normal allocation is given. In the following period, the full allocation will be given thus carrying into effect a cut of one eighth. Every eighth coupon in the ration book becomes invalid, the authorities intimating which coupon is thus rendered useless.

### British Toiletries Association

*Soap, Perfumery & Cosmetics* informs us that manufacturers of perfumes, cosmetics and toilet goods have successfully got together and agreed upon definite proposals for the establishment of the Toilet Preparations and Perfumery Manufacturers' Federation of Great Britain.

The meeting at which this step was taken was called by the Perfumery Section of the London Chamber of Commerce and held May 17. The new Federation's provisional chairman is L. J. Matchan.

The meeting unanimously agreed upon the desirability of one organization only to represent trade interests, and that such an organization be formed under the title of the Toilet Preparations and Perfumery Manufacturers' Federation of Great Britain, which shall as soon as practicable be incorporated as a company limited by guarantee. Unanimous agreement was also arrived at upon restriction of membership to actual manufacturers and owners of proprietary brands (with a proviso allowing for possible associate membership at a future date).

The current provisional committee, consisting of L. J. Matchan, chairman, and T. Lyddon Gardner, N. F. Fabricius, A. Chaventré, W. H. Osborne and E. J. Smith, is to hold office only until the first general meeting of the Federation.

Medium and small manufacturers are represented by four seats. The nominations were: R. L. Demuth, W. Ruff, Mr. French and Charles Nathan.

Non-representative members: Normally six in number but on the first occasion eight, in view of the absence of an immediate past-chairman and vice-chairman: Horace Barrett, A. J. Black, V. Beetch, R. G. Dyas, A. F. Gunning, A. J. Madden, M. Vardy, and W. Cowlishaw.

The chairman concluded his remarks by saying: "I propose that this provisional committee, besides bringing the Federation into being shall from now on be the Committee for the United Industry, and that the committee of the two existing bodies function only to commence the process of winding-up these bodies, which act shall be the final ratification of an agreed constitution."

# Cosmetic Trends in the Middle West

*Deodorants gain in sales . . . Cake powder demands increase with cool weather . . . Sales of leg lotion are steady*

by JEAN MOWAT

TOURING the Middle West these days one is ever confronted with the current difficulties of transportation as well as shipping. Only a month ago a wired order by express was delivered in three days. Today the same type of service is taking about a week. Freight orders are averaging from two to three weeks longer than formerly and no buyer sees any relief as long as major shipments of war materials must be sent to the Pacific Coast.

#### DEODORANTS MOVE UPWARD

For several summer seasons deodorants have been gaining in sales. Some buyers attribute this to instruction given in schools, and the attitude of one's school mates if body odor is not quickly eliminated. Mention has been made that more and more men are buying these items and using them in business and especially in sports.

During the past month, letters from boys overseas have contained requests for deodorants, and not just one jar but several. No buyer offers an explanation but the development of this new trade bespeaks postwar sales that will make this type of preparation as important on every shelf as a shaving lotion. Buyers are not missing the angle of this in promotions, for stores in Chicago, Des Moines and St. Louis have taken advantage of the new requests to stress local importance.

National advertising has also given a new fillip to the theme and as the summer advances more and more stores will present the idea, for buyers working on August-September promotions realize it has a greater

importance than appeared a month ago before requests from battle zones began to come into the stores.

#### POWDER SALES INCREASE

It has been a general opinion that powder sales were lagging behind the cake-make-up types, but cool weather throughout the entire territory has forced buyers to change their opinions to a great extent.

A light colored powder, as cool in appearance as the weather, has had an unusual summer-time sale. Not only has it been a regular item featured in quarter and half page ads of leading department stores but it is not unusual for drug chains in centers such as Des Moines, Kansas City, St. Louis, and St. Paul to feature half a dozen or more branded powders. Many of these are not even in the special sale category but are merely promotion items regularly featured.

Department stores and drug chains in the Chicagoland area state it has been a long time since so much of the powder has been sold. National advertising is held responsible for part of this. Undoubtedly it has proved satisfactory or the repeat sales would not have been recorded in sufficient quantities for a buyer to comment on them.

#### CAKE POWDER STEADY

With a good deal of interest in the improved sale of face powders, buyers throughout the Middle West have been keeping an eye on the movement of cake powders. As most stores took semi-annual inventory the last of July, it was an easy matter to check on this. The first maker of

this type of powder is still the leader in this area. Sales are generally made to the teen-age group. Because so many cakes are lost repeat sales have been easily made. Yet every buyer is watching to see whether the cool weather will increase the competition between the two types of powder. Some expect it will. Others predict it will remain about the same as during the past year.

#### TALCUM vs. DUSTING

The importance of dusting mitts has never been challenged but for some reason these slowed up during the month and talcum sales moved well ahead for the year. There may be some relation between talc sales and the increase in deodorants, although this is a statement easily debated, and again both sets of buyers have opinions. Talcums have been rather slow in movement as the mitts were in smart packages, and some of the talcum offerings now are more smartly boxed.

#### SALES OF LEG LOTION STEADY

Cool weather has kept sales of leg-lotion about the same or slightly better than in 1944. If there had been the extreme heat of 1943 few buyers would have been able to supply the heavy demand. Six weeks ago buyers agreed they might be stuck with merchandise. Some stores held semi-annual clearances on as wide an assortment as ever graced a tumble-table. Bottles formerly priced at \$1 moved out at 29c. "When we have that kind of stock at the end of July" said a buyer, "we certainly want to get it out of our hands, even at a loss."

Many buyers attribute the success of the lotions (the cake has been a slow and intermittent mover) to the clever advertising that indicated a smartly done job was similar in appearance to a 51-or a 54-gauge hose. This idea clicked well for a liquid stocking was really something to "own."

Because of the extremely cool weather in which sun bathing was often too dangerous, many women who like to have the natural tan of the sun adopted the tinted bases and found them easy to apply and highly satisfactory. The bronze tones were especially popular, and may extend far into cool weather, assert a number of buyers.

#### SKIN LOTIONS ARE IMPORTANT

Bubble bath preparations have had extensive summer promotions—at regular prices. Bath salts in five-pound bags have been among the half-year casualties, not that they didn't move but that stocks were generally too heavy. This happens when there are more showers than baths being taken.

Bath oils have moved up into more demand. High priced as these are, more attention is being given to skin care than in many days. The usual lotions have held steady, although most buyers say these usually fall off in sale when the weather is hot.

A new type of nail "creme" which the Golden Rule in St. Paul is sponsoring promises relief to the women who have nails breaking after using a polish. It is reported as one item enjoying a substantial repeat business. There are very few women who will find such an added bit of beauty useless!

#### IMPORTED PERFUMES

When the first shipments of imported colognes and perfumes arrived in the Middle West the latter part of July sales were made the same day and stocks cleaned out. The shipment was small but even at that there is speculation as to what will happen when ample stocks are received.

"We don't expect to have any quantity of imported perfumes or colognes until about Christmas of 1946," said a leading buyer whose store has always been very strong in imports. "There must be a complete

harvest and processing before any amount can be shipped." Generally, this buyer as others throughout this section, agree floral scents will continue for some time.

Sophisticated odors are not popular with the smartly dressed women. The new folding-money class is buying lavishly but not enough to overbalance the sale of florals as these are strong in both colognes and perfumes, whereas the "f-m" class buys only perfumes.

#### HIGHLIGHT PREDICTIONS

Red rouges will continue until fall fashions indicate a swing to the left or right—brown or blue tints may appear. Nail polishes will match these.

Men's toiletries moved into high gear for Father's Day but have slowed down. Buyers generally agree father had so much given to him that only birthdays and Christmas will be important for 1945 sales.

Fitted cases, complete for any time and place of travel or vacation are outselling plain bags about 5 to 1. Larger ones into which a few lingerie units may be placed are having the best sale and are important as gifts.

Creme shampoos are growing in volume; liquids holding their own.

Soaps are more important than before a shortage appeared and all the leading stores in the Middle West have taken space to advertise special brands—at regular prices.

Suntan lotions, creams and other protective forms have had a good presentation and sale considering the weather. Oils which have been popular in the tropics for many years are growing in sales and are expected to be highly important for 1946. In a half page ad on lotions two oils were featured in a group of six in a price range from \$1 to \$2.

School openings should produce more interest in the special cosmetics for the junior. The recent introduction of these for the teenager by Marshall Field & Co., in mid-June, has been sufficiently active to make substantial repeat business. As a holiday or birthday item such boxes have a definite place and the display of these cosmetics now will insure big sales during the Christmas season. Miss Alice Graff succeeds Miss Burke in buying junior cosmetics.

#### Improved Hair Grooming

The American woman is devoting additional time and attention to the care of her hair, reveals the latest Reader Forum on Hair Preparations released by Fawcett Publications recently.

The number of fastidious women who wash their hair once a week or oftener has increased from 70 per cent in 1944 to 75 per cent in 1945. Hair tonics and scalp preparations are being used by 8 per cent more women this year than last, with 68 per cent using a corrective for dandruff and 48 per cent combating dry hair.

A growing preference for cold waves in the permanent wave field is shown by the 17 per cent who had this type of wave in 1945 over 7 per cent in 1944.

A rise in the price paid for permanents is indicated by a jump from 37 per cent who paid more than \$7.00 for their permanents last year to 57 per cent this year.

The fact that 48 per cent of the women queried in 1945 were indefinite about the brand of permanent they received, as compared to over 55 per cent who weren't sure in 1944, proves that these women are growing more brand conscious.

Home permanents are consistently gaining in popularity, with 23 per cent trying them in 1945 over the 17 per cent who had used them in 1944. Over 25 per cent of these women have given themselves more than one home permanent during this period of time.

DEPARTMENT OF COMMERCE, DRUGS AND PHARMACEUTICALS UNIT requests manufacturers to mail to them copy of pricelists and catalogues to assist them in compiling complete reference library of the industry. This will be purely an information library.

It is desired to compile data covering all manufacturers and their products in the industry.

Your cooperation will be thoroughly appreciated.

THE AMERICAN PERFUMER.

# How Color Dynamics Promote Efficiency

*The cosmetic, soap and flavor manufacturing industries were among the first to utilize color-consciousness in the packaging of their products . . . It has also been woven into pleasant and harmonious patterns for the laboratory*

by E. D. PECK

INDUSTRIAL relations and personnel managers in the nation's war plants have found that such "trifling" acts as providing plenty of soap and towels and serving flavored soft drinks to employees pays hundredfold dividends. Production men likewise have discovered that *color* has invaluable efficiency producing and morale-building characteristics when used on a scientific basis for improving working conditions.

In war plants of all sizes and descriptions color is helping turn out the material needed for victory by substituting positive measures for negative factors. Practical applications have proven that the scientific use of color reduces eye-strain and nervous tension for the worker; that it stimulates the mind and body thereby reducing accidents and absenteeism with a corresponding increase in production. Many industrialists familiar with the results obtained claim that this scientific use of color, formulized in the theory of color dynamics as developed by the Pittsburgh Plate Glass Company, will be universally adopted as material shortages are eased.

In pre-war years most plant officials looked upon paint as a medium to protect plants or machinery and nothing more. To these basic concepts other equally if not more important advantages have been permanently added during the war. These concepts are contained in the theory of color dynamics, which is, fundamentally, the scientific use of psychologic, symbolic, and visual power and energy in color to promote efficiency. This theory is based on use of color as a specific, in other words, as a definite, measurable production

item. The wave lengths of every color should be controlled and made to do a certain job. The importance to industry of the control of color waves is realized in view of the fact that light travels at a constant speed of 186,000 miles a second. Thus a staggering number of color waves impact on a worker's eye in a single second and to prevent fatigue these colors must be of stimulating nature. This end is most effectively achieved by following the precepts of color dynamics.

## COLOR INCREASES OUTPUT

Color dynamics, in addition to being the result of extensive scientific research, also epitomizes a fast-growing popular consciousness. The cosmetic, soap, and flavor manufacturing industries were among the first to utilize this color consciousness in the coloring and packaging of products. However, while realizing the worth of colors in this respect, they limited color use to product beautification, little realizing that the same color principles could be made to accomplish certain predetermined objectives in their production plants. In common with other manufacturers they bought and applied paint to protect the production equipment and facilities unmindful of the fact that the customary glistening white or dull gray was having a negative effect upon their employees. Reports from all over the nation, however, are concretely demonstrating that this situation is being remedied and that color dynamics has something to offer production men regardless of the type of operation. As with other industries, cosmetic, soap, and flavor manufacturers can draw upon

the energy and power of color to increase output. Just as the latter industries have used color to sell their products, so can color be woven into a pleasant, harmonious, and efficiency producing pattern for their manufacturing units.

During the current emergency, the constantly changing manpower situation is directly affecting all cosmetic, soap, and flavor manufacturing industries and color dynamics affords a means whereby this situation might be eased. Installations in war plants have proven that proper painting has resulted in more manhours per day per man, thus making most effective use of available manpower. As in textile mills, for example, where proper use of paint has reduced the demoralizing visual effect of huge masses of machinery on workers, similar uses could be made on rotary-labeling machines with their seemingly endless lines of moving boxes or bottles. By using a combination of eye-rest and focal colors the operating or danger areas of these machines could be separated from the non-operating areas so that the visual effect on workers in the area would be one reflecting rest and at the same time highlight safety factors.

The storage, mixing tanks, or other tanks used in cosmetics, soap, or flavor manufacturing are large in size and tend to visually jam-up the interior. This is particularly true where the tanks are arranged in compact rows. In many plants these tanks are now painted a glaring white, adding to the mental confusion of the workers' mind originally induced by the tank's size. With application of a receding color, these

tanks could be visually reduced and at the same time contribute to better illumination by eliminating high reflective surfaces. Similar treatment could be given to the packaging, capping, and other machines which are now of beautiful, streamline design. These machines, in themselves usually most attractive, can easily become a production retardant if they are out of harmony with color treatment of the room.

#### COLOR SERVES AS SAFETY AID

Today the high-speed production of soap and similar products for war plants has required efficient up-to-date machinery particularly in the processing department. Here color can serve not only to speed up production but to prevent loss through accidents. Workers in these areas must be constantly alert to maintain exact pressures by watching panels of dials. Unless the color treatment is properly planned to reduce eyestrain these workers will be subject to unnecessary fatigue. A cool, Vista Green would serve on the non-operating parts while moving sections, dials, switches, and danger areas could be in focal orange.

A vital unit in the production of cosmetics, soaps, and flavors is the

laboratory. The very nature of the activities carried on in the laboratory indicate that here the neutral grays, whites, and off-whites can be used to good advantage. The colors of formulas, solutions, and other material used or under observation and test are ofttime of importance in determining conclusions. The use of neutrals on the walls, ceilings and trim minimizes the danger of color-change in the material from light reflected from color surfaces. Color interest or relief can be obtained by painting the interior of cabinets or storage cupboards in bright cheerful colors. In some laboratories where experiments are conducted constantly upon material of the same color, then a different color approach is indicated. This treatment would follow the lines suggested by use of color therapy in operating rooms of hospitals. It was found that when a surgeon raises his eyes from an operation for a fraction of a second his intense concentration on the red of normal blood causes him to see a blue-green, which is the complementary of red. Thus if the surfaces of the room are painted an eyerest green there is no conflict between the color image of the eye and the color on the surface. In an in-

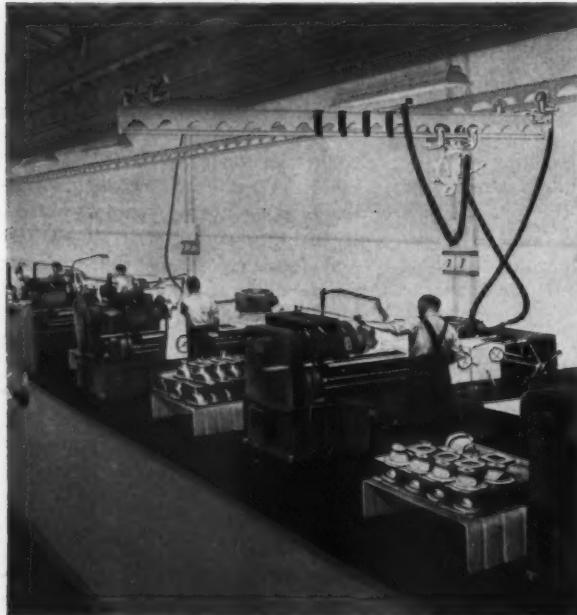
dustrial laboratory, if technicians are constantly working with compounds, or solutions of one color, the surfaces should be colored in that shade complementary to the color upon which the eyes must be concentrated.

#### COLOR PREVENTS MISHAPS

In the shipping department and other locations where permanent or portable conveyors are used, such equipment should be highlighted with focal orange to prevent mishaps. Mobile and fire equipment should also be finished in some bright focal color such as red or orange. Other specific uses of color in shipping, packing, or storing rooms are dependent upon individual locations. The experience of one war plant official in use of color might be copied by others to good advantage. Through the simple expedient of painting certain boxes green instead of the usual black, this official found that the workers were less conscious of the boxes' size and weight and consequently less tired after handling them over considerable periods of time.

#### ILLUMINATION AND COLOR

Proper illumination is of prime



The bodies of the machines are painted in Vista Green with moving parts accentuated in Focal Ivory. The overhead crane, skids, and mobile truck are Focal Orange, the floor is Dixie Gray. The aisle is lighter gray with bands of Focal Red. The ceiling and girders are Cascade Blue.



A technician is using the rub-up test to establish characteristics of pigments. In this test, mass tone, brightness, and cleanliness of pigments are checked in detail against the established standard. Dynamic applications are assured by continuing laboratory research.

consideration to cosmetic, soap, or flavor manufacturing plants and color dynamics saves many maintenance dollars expended for lighting. This new system recognizes and utilizes, perhaps for the first time on such extensive basis, the inter-relation of light and color. A properly chosen paint scheme helps illumination in three ways; it reflects, diffuses, and conserves light. Generally speaking the ceiling of a soap or other plant should reflect at least 75 per cent of the light rays for sufficient illumination in work areas while walls should maintain a 50 to 60 light reflecting power. In most plants, however, light and paint are not coordinated and the reflective qualities of walls and ceilings are almost negligible. Usually these surfaces are painted a drab gray in an attempt to create the aura of cleanliness. Both have the effect of straining the worker's vision through lack of illumination and ill-use of color. This strain is, of course, reflected in a lowering of the quantity and quality of production.

#### FOCAL AND RECEDING COLORS

The first job of color in its application to machinery is to separate the critical from the non-critical parts. The critical parts must also be visually divorced from the material worked upon rather than the same or corresponding color. Use of contrasting colors in this respect is based upon the fact that a piece of black thread on a black cloth requires, under normal conditions, 2,100 foot-candles to be seen while a piece of white thread on black cloth under the same conditions requires only one-foot candle for equal visibility. The critical or operating parts are given a color that comes quickly to the eye—a color that "moves" in strong contrast to the stationary or non-critical parts of the machine. These are known as focal colors and include focal ivory, buff, green, light green, blue, yellow, beige, red, orange, focal light gray, focal dark gray, and vista green, as well as focal white and black. The primary purpose of focal colors are, in combination with their complementary color, to focus the worker's attention exactly where it should be, on the object being produced. It also arrests his eyes and reduces the unnecessary eye travel.

As the critical machine part must move forward the non-critical parts must "drop back." The widely prevalent "machine gray" does this to a certain extent but is in itself a depressing, morale-lowering monotone. After careful study and research a receding color called "vista green" has been developed for the body of the machine. No other color has such a relaxing effect on the human eye as green and yet it does not in any manner suggest depression. This color scheme is predominant in the natural world. The widespread use of green in field and forest suggests life, joy, and relaxation. When nature is depressed she clothes herself in dank, dark gray shrouds of rain, fog, or mist. The same method of treatment obtains for machinery, work areas, and structural factors of manufacturing plants and laboratories.

#### EFFECT OF COLOR EXTENSIVE

Color not only has a physiological effect on the human eye and nervous system, it has a profound psychological reaction on the mind. Certain colors have the "power" to elevate the mind while others can blunt the nervous system and act as depressants. Still others create confusion. The mental and physical impact on a person of proper and improper color can be compared with the reaction caused by sound or more particularly by music. The discord of untrained musicians has a jarring effect usually to the point of physical reaction. On the other hand the beautiful cadences of a trained symphonic group can guide the mind and body through moods ranging from sadness to sublime happiness. Color harmony produces essentially the same reaction as any other harmony—when properly used it creates a discordant element. Unlike tonal harmony, however, color harmony—or discord—is a constant, not variable factor in industrial plants, inasmuch as color or paint cannot be removed or applied as easily as an orchestra or a recording.

With the phenomenal development of the scientific use of color during the war and its practical application and acceptance by industry, little doubt can exist that it will be an important factor in planning the new machinery and plants of peacetime America.

#### Standard Safety Color Code

Basis of the standard safety color code proposed for national use by the American Standards Association is the safety system now in use in Quartermaster and Army Service Forces Depots.

Supply depots, with military and civilian personnel running into thousands, are scattered throughout the country. Fires or accidents in these Depots hold up shipments of vital supplies to the Fighting fronts. Since military personnel are frequently shifted from one Depot to another, and untrained soldiers are constantly being assigned, value of standard safety measure assumes importance.

Color schemes for identification of various hazards have been used in the past by industrial plants, but there has been no uniformity in colors used. As a result, spontaneity of action in emergencies is lost, particularly when employees move from one plant to another.

Red, green, yellow, white, and black, and combinations thereof, were the colors finally agreed upon for the Quartermaster and ASF Depots. Red is used to identify fire protection equipment, and danger and stop signals. Green is the basic color for designating safety—the location of first aid equipment, dispensaries, stretchers, gas masks, and safety starting buttons. Yellow indicates the need for caution and marks physical hazards, such as obstacles which may cause stumbling, the projections of machinery, or pillars. Black, white or a combination of these two shall be the basic colors for designating housekeeping, sanitation and traffic markings. Solid black, solid white, or either striped or checked combinations are recommended for direction signs, corners, passageways, stairways, dead ends, traffic guides and refuse cans. Great care has been taken not to conflict with signals used in sea and air navigation or rail transportation.

The code, as set up by the American Standards Association, will be sent to safety engineers and interested organizations throughout the country for suggestions and final comment. In 1927, the Association unified on a national scale the colors now used in traffic lights, and in the 26 years of its existence has created more than 700 industrial national standards.

# Packaging

P O R T F O L I O

LA CROSS: New Era is a beautifully designed presentation by La Cross. The fingertip beautifiers are fitted into the very round translucent plastic base. The cover is colorful, showing round-the-world points of excitement.



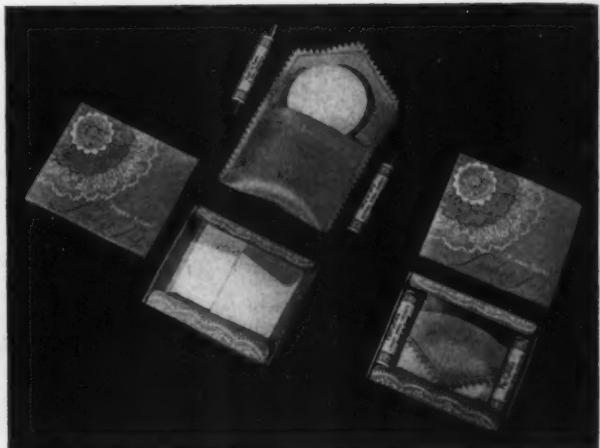
LA CROSS

QUEEN HELENE: The latest creation by Queen Helene is the Mint Julep Beauty Bar, a trio of skin toners. The package is cleverly designed to look like a garden server. Its base is green grass ablaze with bright flowers. The jars are white, red-capped.

QUEEN HELENE



PERMA SCENT



PERMA SCENT: A dainty new tube-and-slide carton in pink and lacy white for Perma-Scent Sachet Set has recently made its debut. The carton contains two vials of perfume and a perfumed disk.

TUSSY: Sun-tan oil, lotion and anti-sunburn foundation cream are the offerings to the sun-minded by Tussy. The bottles are of a smooth, modern design. The cream comes in a sturdy, shiny black Tussy jar.

TUSSY



**PARFAIT:** Sweet 'n Lovely is the new group of bath accessories designed especially for the use of youngsters by Winifred Pawliger for Parfait. The line for the budding glamour girl contains cologne, liquid bubble bath, soapless shampoo, hand-lotion, a bow-shaped soap and a powdermitt which fits junior sized hands. Colorful drawings add to the attractiveness of the blue and yellow labels.

**JOHN FREDERICS:** The Golden Arrow trio of cleansing, beautifying and foundation creams comes from John Frederics. Identically packed in stiletto-gray, gold-scrolled jars of graduated size, they make pretty dressing table accessories.

JOHN FREDERICS



HATTIE CARNEGIE



& Essential Oil Review



PARFAIT

**HATTIE CARNEGIE:** Four Winds is created by Hattie Carnegie to achieve an aura of coolness. A crystal-clear bottle, sign-post labeled and capped in Carnegie Blue holds the new body mist.

**POND'S:** A new package is presented by Pond's—the De Luxe Beauty Box. The group, which contains cold cream, vanishing cream, face powder, rouge and lipstick, comes in a box of a quilted design. A pale green cover with a pink label and base, or a pink cover with green label and base make attractively colored packages for the Beauty Box.

POND'S



August, 1945 51

# Short Adages

by R. O'MATTICK

**B**ELIEVE it or not, as Mr. Ripley says, we have seen a picture of a Research Laboratory which does not show a microscope or a retort. This is the painting of the Research Laboratory of the Niagara Alkali Company, as interpreted by the artist, John Gaydos.

For some reason, unknown to us, nearly every photograph or picture used in advertising the miracles worked within the modern research sanctum to improve Piffle's Perfume or Doodle's Deodorant Do-Dad always shows a chemist with a long, pointed black beard, looking intently through a microscope having at least three nose-pieces, while in the background another chemist is fixing his eyes on a retort. Now, we have nothing against microscopes and retorts, and they can be most useful. But microscopes are nearly always kept

clamp to support the round-bottom flask which is on a tripod over a Bunsen Burner. The painting is so vivid that we fear the flask will tip over at any moment.

Only a few months ago when Otto Stock still had a relatively plentiful supply of bottles and caps he worried about the problem of what to put into these bottles. Now his supply of materials is higher and his supply of bottles is lower, so he worries about where to get the containers to fill the materials he has. Such is life. He says that the phrase "never a dull moment" so commonly heard hereabout is underestimating conditions sixty-fold, for it is much nearer the truth to say, "never a dull second."

We never knew a man like Pat Chouli for being so grateful for so many things. He says the rainy season has its value for at least there will be no shortage of water what with everyone lowering the alcohol content of this and that due to the



locked up in a wooden box to protect them from dust and dirt. Retorts of the type shown in most advertising views of laboratories are never used except by high-school students to make nitric acid in Chem. 2.

It maketh our heart joyously glad to see there are no microscopes or retorts in the portrayal of John Gaydos. But even here we pause to ask why the chemist in the background doesn't have a ring-stand and

restrictions which have not as yet been restricted.

Every buyer wants to know just why this or that is scarce. Now there are many theories explaining why he wants to know the reason or reasons. These theories have been listed by our Public Relations expert as follows:

1. Mere curiosity
2. Desire to improve his knowledge

3. Desire to know so that he can tell his (a) boss to show that he knows; (b) brother-in-law to make an impression
4. So that he can compare what two or more suppliers say to catch them in a lie
5. Desire to chat on the phone rather than to do some honest work

We believe that the average buyer wants to know the reason for a combination of all of the above reasons. And many suppliers have developed various techniques in answering "Why, Daddy?"

Before we forget, we must destroy the canard that Pat Chouli exists only in our imagination. Time and again, we have received letters from our readers asking about his true identity—whom we have in mind, etc. One letter, which is representative of many, begins thus: "Of course I know that there is no such person in or out of the Trade by the name of Pat Chouli. It was very clever of you to take the name of a scarce essential oil and make a man's name out of it. But your Mr. Pat Chouli is oftentimes so real and vivid that you must have some definite person in mind when you write about his comings and goings. I suspect that you mean Mr. \_\_\_\_\_ of our firm; am I correct? You can tell me in strictest confidence."—Z. Y.

We regret to inform you, Dear Mr. Z. Y., but you are not correct and your insinuations have no basis of fact. Mr. Pat Chouli is a very real person and his real name is Patrick Chouli—a rather odd combination but he is of Latin origin—brought up by Irish foster parents, which explains his first and last names. He is half Scotch and half Soda—an active member of the Essential Oil Association of the United States and an Associate member of the Toilet Goods Association. He also belongs to BIMS, FORAGERS, DRUG SECTION BOARD OF TRADE and is an avid reader of this Journal as well as a worth-while customer of our Advertising Department, buying much space and giving them little trouble. He drinks to be sociable but not to any great excess—he does not wish to have us give you his address but his business number is DRY-DOCK 7-7777.

# FLAVORS

## Flavor Powders, Pastes and Tablets

*The use of alcohol and excessive liquid can be avoided by the judicious use of flavor powders and pastes*

by MORRIS B. JACOBS, PH.D.

AMONG the alternatives that are available for the preparation of flavors which avoid the necessity of using tax-paid alcohol are (1) the preparation of flavor solutions using solvents other than alcohol, (2) flavor emulsions, (3) flavor pastes, (4) powders and (5) flavor tablets. Flavor emulsions have been discussed in a previous article. While flavor powders, pastes, and tablets have been found particularly suitable for bakery products and for confectionery, they provide a general method for the addition of flavors and can be readily adapted for household use.

The employment of flavor pastes and powders in various food industries is no new development. In this instance also, as in the case of flavor emulsions, there is considerable relationship to the use of pastes and powders in pharmacy and medicine. Thus flavor powders are an adaptation of the oleosacchara of the several pharmacopeias, and tablets are a common method of dispensing a known quantity of a medicine.

There are several marked advantages to the use of these products, other than the fact that no alcohol

is necessary. In the case of powders and tablets, particularly, and also in the case of pastes, little water is present, hence dilution of the products in which they are used can be avoided. In addition, these products can be prepared inexpensively. Pastes can be packed in collapsible tubes which enable one to dispense the flavor very easily. Flavor powders lend themselves to addition by means of automatic weighing machines. Tablets are generally prepared to a given weight, consequently a known amount of flavor can be added by adding a known number of tablets. Since it is customary to prepare such flavor pastes, powders, and tablets with a greater flavor concentration than the flavor essences and extracts they are intended to replace, they occupy less bulk than alcoholic products and correspondingly require less filling and packing manipulation.

However, these products also have several limitations. Since they contain no alcohol, they do not have the additional flavor which alcohol gives. In the case of powders and tablets, no fixative, in the usual sense, is present and there is thus a ten-

dency for flavor to be lost. Some pastes, powders, and tablets are more readily susceptible to spoilage on exposure since the preservative action of alcohol is not present, consequently it is important that they be adequately packaged. Once the package is opened, it should be capable of being properly closed.

### COMPONENTS OF FLAVOR PASTES

Formerly the principal nonflavor components of flavor pastes were glycerol and sugar or sugar syrup but in more recent years both components have been replaced in part or completely by commercial glucose, commercial sorbitol solutions or solutions of other hexahydric alcohols, apple sirup and other types of materials. In addition to these components, flavor pastes can be made by use of emulsifying agents. If sufficient of certain types of emulsifying agent is used, a plastic mass can be prepared instead of a free flowing emulsion. The preparation of such products has been discussed in a previous article.

### COMPONENTS OF FLAVOR POWDERS

The principal nonflavor component

of flavor powders is confectioners' or XXXX powdered sugar. Other diluents such as powdered lactose, dextrose, or dextrin may be used. If the flavor powder is to be employed in the production of bakery products, then cornflour can be used as the flavor base.

#### PREPARATION OF FLAVOR PASTES

While there are several differences in the preparation of flavor pastes from that of the preparation of flavoring extracts and essences, flavor solutions and flavor emulsions, the principle remains the same. The flavor paste is prepared with a diluent so that slight variations in the amount of flavor added to produce a given product will have little effect on the product being prepared. The diluent in a flavor paste is the glycerol syrup or plastic emulsion, instead of the alcohol and water of flavor extracts and essences. Usually flavor pastes are made so that their flavoring power is greater than the corresponding flavoring essence or extract.

A general method of preparing flavor pastes is to dissolve the required amount of flavor material in glycerol and then add an equivalent amount of a syrup. Another simple, general method of preparing flavor pastes is to add sufficient glycerol or analogous material to a flavor powder to make a paste. Color can be added with the syrup or glycerol as desired.

A typical example of a prepared flavor paste is the following: Dissolve 5 ounces of vanillin and one ounce of coumarin in 2.5 gallons of glycerol. Stir in 2.5 gallons of commercial glucose. This will make about 5 gallons of a vanillin flavored paste.

As mentioned above, emulsion flavors can be prepared with such great viscosity, that they have the appearance of a paste. It should be clear, however, that merely because a paste has a high viscosity, it is not necessarily an emulsion. For instance, in the example given above, the vanillin and coumarin are in solution in the glycerol and the resultant product is merely a solution of high viscosity and not an emulsion flavor.

#### PREPARATION OF POWDERS

As explained above, a flavor powder consists of powdered sugar or other diluent upon which a flavoring material has been adsorbed or with

which a flavoring material has been mixed. Generally they are made to correspond in flavoring power to the flavoring essence they are designed to replace but they can be made more concentrated in flavor content.

Usually 2.5 to 5 ounces of flavor ester mixture are triturated with about 5 pounds of the powder base. Thus for instance, 5 ounces of lemon oil can be mixed with 5 pounds of powdered sugar to make a powdered lemon flavor. If desired, 5 ounces of finely grated lemon peel can be added to this preparation. The 5 ounces of oil of lemon can be replaced by one ounce of terpeneless oil of lemon, or else citral can be used. The powder may be tinted by spraying with a solution of tartrazine adjusted to give a lemon shade.

#### SIMPLE FLAVOR POWDERS

Among the simplest flavoring powders are vanillin sugar and coumarin sugar. The former is prepared by triturating approximately 2.5 ounces of vanillin with 5 pounds of confectioners' sugar, while the latter is prepared by triturating one gram of coumarin with two pounds of powdered sugar.

Still another simple powder flavor that can be prepared is an almond flavored type. Triturate 2.5 ounces of benzaldehyde with 5 pounds of confectioners' sugar and sieve, if desired.

A somewhat different type of flavor powder is the following example of an artificial grape flavor powder. Mix thoroughly one ounce of potassium hydrogen tartrate (cream of tartar) with one quarter pound of finely powdered tartaric acid. Add an additional pound of powdered tartaric acid in four portions, mixing thoroughly, preferably by sieving, after each addition. Add 5 pounds of confectioners' sugar in a similar manner. Add three ounces of methyl anthranilate and again mix thoroughly. To color the mixture, spray on sufficient synthetic grape color to yield the desired shade when a tablespoonful of the powder is dissolved in a gallon of water. Spread out to dry and finally pass through a sieve before packaging.

Powders used for the preparation of bakery goods can be prepared by adding the flavor to the filling. Cornflour makes a good base for such

powders. Artificial color can be incorporated at the same time.

#### FLAVOR TABLETS

The preparation of flavor tablets is quite analogous to the preparation of tablets for medicinal use. The Army Quartermaster Corps developed an imitation vanilla tablet. This tablet consists of cornstarch, lactose, vanillin and coumarin. It is about the same size as an aspirin tablet and has the same weight, 5 grains per tablet. This, in the case of the aforementioned imitation vanilla tablet, is equivalent to a teaspoonful of vanilla extract. Because of its lactose content it dissolves readily in hot or cold water.

Flavor tablets have not had as extensive development as other forms of flavoring preparations. They unquestionably have certain marked advantages and very likely they will find increasing application in the future.

#### Flavored Notes

There has been, possibly an unavoidable tendency to use certain substances as basic flavoring ingredients to the exclusion of many other equally adequate flavoring materials. It might be a good thing to investigate the possibility of the use of essential oils as the basic ingredients in new as well as old flavor formulations.

Flavors containing vanillin or bourbonal (ethylvanillin) which are not imitation flavors should be labeled to show that these products contain vanillin or ethylvanillin and that the aforementioned substances are synthetic materials. In the case of imitation vanilla flavor, however, it is sufficient to declare the presence of vanillin or bourbonal.

In planning a flavor composition it is well to take into consideration some of the unusual properties of any given substance entering into that formulation. Thus for instance, geraniol can serve as an antioxidant and stabilizer in preparations containing benzaldehyde.

Since benzoates are principally effective in acid solution, it is customary to add an acid such as citric or tartaric acid, if insufficient acid

is already present, to reduce the pH to about 3.5. When this is done the benzoate should be dissolved first and added to the batch; then the fruit acid may be dissolved and added. No attempt should be made to dissolve the benzoate and fruit acid together for the relatively insoluble benzoic acid will precipitate out and difficulty will be encountered in trying to reincorporate it in the solution.

\* \* \*

It is well known that the addition of a true flavor to an imitation flavor will enhance the flavor quality of the imitation. It is also well known that the addition of a small quantity of a synthetic flavor will agreeably intensify the flavor quality of a true extract. In the latter case care must be exercised to label the product properly.

\* \* \*

It is well to note that some years ago, the Food and Drug Administration ruled that the designation, *beverage base*, is appropriate for a product if the article is to be mixed with sugar and water to produce a beverage. The fact, however, that sugar must be added should be plainly stated.—M. B. J.

### Vanilla Beans Scarce

Inquiries in the vanilla bean market revealed that there were comparatively few beans in dealers' hands remaining unsold. The French Colonial Government is reported to have fixed an export quota of 700 tons covering the period July, 1944, to July, 1946. Four hundred and fifty tons have already been shipped and with additional purchases of four hundred tons, the export quota has been oversubscribed by one hundred and fifty tons.

According to reports no further shipments are afloat from Madagascar and it is generally feared that each importer will be cut down on the amount of additional tonnage to be received under the export quota. Normally consumption of vanilla beans runs around four hundred tons a year. Advices which have been received from Mexico are very unfavorable regarding the vanilla crop in that country.

To add to the tight situation, shipping prices remain well above

the level which local importers are able to pay under present war-time price regulations.

### Jamaica BWI Sugar Trade

Jamaica, BWI, produced a sugar crop in 1944-45 of 156,460 long tons, according to the Sugar Manufacturer's Assn. Ltd. There were 61,606 acres planted to sugarcane in 1944, but that did not comprise the entire acreage as there is a substantial carry-over of acreage from year to year with slower-growing varieties of cane.

The 1943-44 crop of sugarcane in Jamaica produced 151,882 long tons of unrefined sugar, approximately 2,500 tons less than the estimate made at the beginning of the harvest. The output was below that of the previous three crops which were as follows: 1940-41, 156,552 tons; 1941-42, 155,262; and 1942-43, 165,669.

### Large Orange Crop Expected

It has been estimated that this year's orange crop is to be one of record proportions, amounting to 106,910,000 boxes, compared with 103,056,000 last year.

"Citrus prospects continue favorably in all producing states except Florida, where the extended drought was broken in May only by scattered showers," the Crop Reporting Board said. "June 1 conditions of new-crop oranges are reported the lowest since 1917."

The breakdown by states as compared to last year follows: California 58,500,000 and 51,966,000; Florida 42,900,000 and 46,200,000; Texas

4,000,000 and 3,550,000; Arizona 1,150,000 and 1,100,000; Louisiana 360,000 and 240,000. Grapefruit production is down as estimates place this year's crop at 51,791,000 compared to 55,979,000 for the preceding year.

The California lemon crop reverses the above in that current production is estimated at 12,800,000 boxes against 11,038,000 for last year. It is expected that 320,000 boxes of limes will be produced in Florida, last year the crop amounted to 250,000 boxes.

### Peppermint Oil

Industrial peppermint oil users can now acquire 75 per cent of their 1945-46 quotas between July 24, 1945, and Sept. 30, 1945, as a result of amendment No. 6, WFO 81. They may not buy a quantity which, together with the stock on hand at the beginning of the year, would provide an inventory exceeding the annual quota for the 12-month period ending Sept. 30. Previous quotas on peppermint oil remain unchanged by this amendment.

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# SOAPS

## Soap Rationing Unlikely

Secretary of Agriculture Clinton P. Anderson has announced an order (Amendment No. 6, WFO 42b) which will increase by ten per cent United States production of household "heavy duty" laundry-type soaps, through requiring manufacturers to use additional quantities of water-softener "builder" materials in their products.

At the same time the Department announced that Army requirements for soap will be lower during the next six months, thereby making it unnecessary to reduce further the quotas of fat available for the manufacturing of civilian soap.

In making this announcement, Mr. Anderson said: "All of this should result in a substantial increase in the amount of soap available for civilians and should persuade housewives of this country to discontinue the practice of raiding the shelves of stores as soon as a new shipment of soap arrives."

"If we were to have soap rationing, it would be necessary for me, as Secretary of Agriculture, to authorize it," Mr. Anderson continued, "and I do not plan to issue such authorization. Operating a soap rationing program is just too great a problem to undertake now. It would be a little easier on all of us if people would buy sensibly, buying only what they need, instead of starting runs on scarce stocks. Supplies will continue to flow to retail outlets, so let's buy what we need as we need it."

The Secretary of Agriculture stated that fats assigned to soap for civilian use was greater in 1945 than it was before the outbreak of the war in Europe.

The added use of "builders" will not decrease the cleansing qualities

of the soaps, nor does it affect the present formulae used in bar soaps or fine fabric granulated or flake soaps.

## CCC Requests Soap Offers

The Commodity Credit Company, through Amendment AWD-544 requests offers on unwrapped yellow laundry bars and yellow laundry solid soap in barrels not later than Tuesday of each week. This soap is to be manufactured under Federal Specification PS-591a and Amendment 2.

Offers are also requested on soap not meeting these specifications, but information on the deviation from the standard must accompany the offer. Offers may be in any quantity, but not in units of less than carload lots.

Offers on soap should be made on form PBO-544, to the Contract Development Section, Procurement and Price Support Branch, Commodity Credit Corporation, U. S. Department of Agriculture, Washington 25, D. C.

## Soap Exports

The Department of Commerce has released statistics showing exports in soaps from the United States for the month of January, 1945. Figures include lend-lease exports.

Type of Soap	Pounds	Value
Medicated	30,914	18,208
Toilet or fancy	314,918	91,021
Laundry	748,506	61,215
Powdered or flake	219,488	33,347
Shaving cream	19,522	12,003
Shaving cake	13,203	15,378
Others	53,432	9,857

## Special Infant's Soap

A special variety of soap is being issued in France for infants use because of the poor quality of soap which is in general use at the present time, reports the foreign press. Special tickets have been distributed which must be exchanged for the soap.

## Shampoo Taxation

The Commissioner of Internal Revenue further clarified the matter of taxation of shampoos when he issued a ruling, dated July 14, in which he called attention to the application of the retailer's excise tax on toilet preparations, etc. (increased from the rate of 10 to 20 per cent, effective April 1, 1944) to retail sales of shampoos.

"Any shampoo (1) containing 5 per cent or less of saponaceous matter, regardless of advertising claims, or (2) containing more than 5 per cent saponaceous matter but designated or recommended as a hair tonic or dressing, or for waving, bleaching, dyeing, tinting or otherwise imparting an artificial appearance to the hair, is subject to the tax when sold at retail."

He indicated, however, that where the shampoos contain more than 5 per cent saponaceous matter, and are recommended in advertising matter solely for cleansing, they are not held subject to the tax.

"Any change in advertising matter to the effect that one of these shampoos is to be used for toilet purposes other than cleansing the hair and scalp will render retail sales of the product subject to the tax on and after the date of such change, regardless of saponaceous matter in the product."

# Technical Abstracts from Scientific Literature

*These brief abstracts listed provide a convenient key to current scientific literature of the world on perfumes, cosmetics, soaps, dentifrices and other preparations*

**Glycerol Substitutes.** A. Burgin. *Pharm. Acta Helv.*, 18, 186-202, 1943. Substitutes of similar constitution such as the glycols, tetritols, hexitols, derivatives of mannitol and sorbitol with higher fatty acids, glycerogens and sugars are discussed as to preparation, composition, physical and chemical properties, uses and toxicities. Organic and inorganic salt solutions alone and with additions, such as magnesium chloride, calcium chloride, sodium lactate, calcium lactate, plant mucilages, alkyl celluloses and amines are reviewed and their possibilities discussed (Through *C. A.*, 38, 1320, 1944.)

**Two New Tests for Boron.** J. A. Radley. *Analyst* 69, 47-8, 1944. Directions are given for producing a deep-blue color with small quantities of Boron and a solution of Solway Purple (Color Index 1073) in concentrated sulfuric acid and an intense orange-brown fluorescence with a very dilute solution of 1-amino-4-hydroxyanthraquinone in sulfuric acid. In the absence of fluoride 0.1 ml of a solution containing 1 gm borax in 100 l of water will give the first test and 1 drop of a solution containing 1 gm borax in 10.1 of water will give the second one. (Through *C. A.* 38, 1973-4, 1944.)

**Dermatitis Due to Nail Polish.** H. Keil, M.D. and L. S. Van Dyck, M.D. *Derm. & Syphyl.*, 50, No. 1, 39, 1944. The cause of nail polish dermatitis in the vast majority of cases observed today is a toluene sulfonamide formaldehyde resin. In tests of 25 of 26 subjects with this eruption, this substance, which is not a primary irritant in the concentration used, elicited intensely positive reactions.

Hypersensitivity to this resin is frequently accompanied by group re-

actions to related chemical fractions and derivatives, such as the condensate of toluene sulfonamide and formaldehyde, toluene sulfonamide and, to a lesser extent, formaldehyde.

This principle of group reactions seems also to extend to sulfanilamide, but the data are too few to warrant general conclusions. In 1 of 4 subjects with nail polish dermatitis a definite positive reaction was elicited by sulfanilamide; the patient had never used this or related compounds, either internally or externally.

A person hypersensitive to toluene sulfonamide formaldehyde resin is usually unable to tolerate the majority of nail polishes commonly used in the city of New York but not necessarily all. Contrariwise, a negative reaction to a patch test with this resin does not eliminate nail polish dermatitis due to another cause, and in such instances, the patient may tolerate a nail polish containing this resin unless there is sensitization to another ingredient.

**Emulsion.** U. S. 2,349,326. A self-lustering aqueous wax composition which forms a substantially soap-free coating comprises a wax-in-water emulsion having therein the loose-bond reaction product of morpholine and a high molecular weight fat acid as the emulsifying agent.

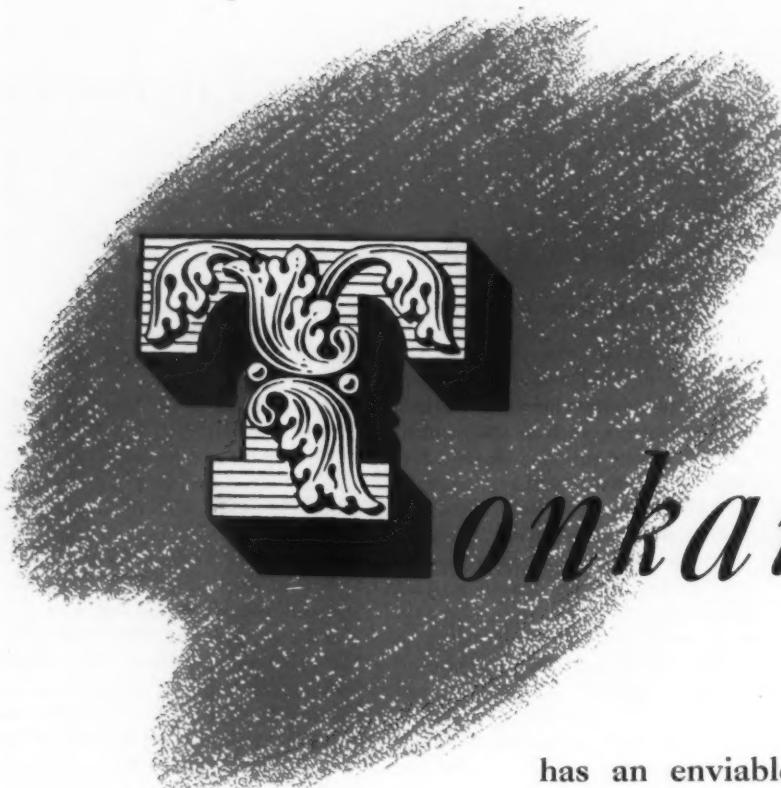
**Depilatory.** U. S. 2,326,609. Polymerized rosin is used with about 5-25 per cent of any oily modifier such as cottonseed oil or a mineral oil to form a depilatory adapted to be applied in liquid form to hairy or feathered surfaces to be solidified by chilling and to be removed in the solid state by stripping the hair or feathers from the surfaces, e.g., from poultry carcasses. (Through *C. A.*, 38, 604-5, 1944.)

**Social Aspects of Allergy.** E. M. Fraenkel. *Brit. M.J.* 1: 216, Feb. 20, 1943. Extrinsic and intrinsic allergic factors are discussed by Fraenkel from the standpoint of acceptability of affected persons for the armed services and for various occupations.

He believes that persons without organic complications and without a family or personal history of other allergic complaints are most readily adjusted to industry. Desensitization to specific substances may render the subject fit for his occupation or for the services. When the subject is known to be sensitive to an allergen, he should be placed in a position where he can avoid this substance. (Through *Arch. Derm. & Syphyl.*, 50, 49, 1944.)

**Polish for Glass.** U. S. Pat No. 2,322,066. A polishing mixture suitable for use on glass or metals is prepared by boiling about 4 ounces of comminuted castile soap in about 1 cup of water, pouring the solution into 6.25 pounds of whiting, together with 1.5 ounces of aqueous ammonia, 1 ounce of olive oil and 0.5 ounce of oil of sassafras. The mass is mixed and kneaded until it has a relatively stiff moldable consistency. (Through *Soap*, 20, 67, 1944.)

**Synthetic Shampoo.** Canadian Patent No. 416,852. A detergent composition suitable for use as a shampoo consists of sodium lauryl sulfacetate. For each part by weight of this, 1.5-5 parts by weight of a stabilizing agent are used, such as the sodium salt of an alkyl ester of an acid selected from the groups consisting of sulfuric acid and sulfo aliphatic monocarboxylic acids containing 2-4 carbon atoms. The alkyl radical contains 6-8 carbon atoms. (Through *Soap*, 20, 67, 1944.)



*tonkaire*

has an enviable reputation, having made a marked contribution to the success of so many perfumes, colognes and toiletries which contain alcohol.

It really removes the sharpness of alcohol odor and lets the fragrance come through.

If you aren't already using it, write us for a sample of Tonkaire and directions for use. You'll really be amazed at the results!

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# WASHINGTON PANORAMA

by ARNOLD KRUCKMAN

**L**ANOLIN, confidently expected to be in better supply during August and September, has been a disappointment. The military requirements are so high that it is now anticipated the scarcity will continue indefinitely. Sylvan B. Falck, who has succeeded to responsibilities of Elmer Tysdal, reluctantly gave the word that there are no prospects for either lanolin or castor oil the rest of the year unless the Japanese should quit in the Fall.

Lanolin, which is an almost irreplaceable constituent in the production of lipsticks, also is an irreplaceable element in the preservation of aircraft engines when they are shipped over long stretches of ocean. The delicate parts of the machines are literally packed in the material, which is hydroscopic, and which protects the engines in such manner that they are practically ready for operation when they are set-up at the place of arrival. It is doubtful that the women who are deprived of the use of the material realize the importance of the service they render to the actual fighting of the war by what they give up. The manufacturers will doubtless let them know, so they may share the pride in the patriotic contribution.

#### CASTOR OIL REMAINS SCARCE

Castor oil, which is entirely eliminated from use by the cosmetic industry for the first time during the war, is expected to continue to be very scarce for many months, regardless of the close of the war. One of the main reasons is the failure of the castor bean crop in Brazil. Our imports this year are substantially less than half

the quantity Brazil sent us last year. It is felt here, however, that the ingenuity of the industry will unquestionably provide the substitutes necessary.

#### S. B. FALCK REPLACES E. TYSDAL

Mr. Falck can supply some interesting information about castor oil and what might be useful in its place.



Sylvan B. Falck

Falck, a career man in Government, is very well informed about the chemistry and the chemicals and ingredients which go into cosmetics and perfumes as well as soaps and flavors, and has a clear and facile manner of transmitting his knowledge. His pleasant personality makes him agreeable in the place of the wise and very popular Tysdal, who was one of the outstanding industry men in the Chemicals Bureau of WPB.

The men from industry are leaving agencies such as WPB in swiftly increasing numbers. In some senses WPB has become a skeleton of the huge organization of six months ago. Regular personnel of the Government have taken the places of some industry officials in order that the old-line agencies may be ready to absorb career men who have been trained under industry experts. It is the plan to permit WPB to fade quickly, so that it may fold up as soon as the war ends. But many of its functions will be carried on by the regular, long-established agencies and departments.

The present system of controls may not be applied as they now function, but it is the plan that the essence of many controls shall continue indefinitely under the administrative control of Congress. The functions will be transferred to various regular administrative departments, and the authority for the functions will stem from laws, such as, for instance, the tax laws. This will eliminate the complicated and more highly personalized direction under Executive Orders, and place the administrators of the laws in the position of passing objections along to Congress itself. The plan includes the absorption of some functions and some personnel from all so-called war agencies. In this way the residue of controls found permanently essential under changed world conditions will be made a stable part of the postwar Government over business.

#### SUPPLY OF FATS AND OILS LOW

The over-all supply of fats and oils is reported by the Department of Agriculture as the smallest in the quarter of a century. Principal reasons for the decline are a 30 per cent reduction in basic crops; increase of military needs this year; and continuation of large exports, shipments of billions of pounds to liberated areas for relief, offsetting any reduction in lend-lease. Inventories of fats and oils are now at the lowest level for many years. Less than a year ago stocks were at a record high level. There are strong indications we shall be called upon to give up more. Herbert H. Lehman, heard of UNRRA recently urged we ration all types of soaps to give Europe more fats and

oils to avoid disease and starvation. Late in July, however, Secretary of Agriculture Anderson announced the Army would undoubtedly use less soap, which would make more fats available for civilian uses. He pointedly stressed he had no immediate plan to ration soaps. No improvement in the fats and oils situation is expected until well into next year. Some copra may at that time arrive from the Philippines. OPA has issued an Order, Amendment 5, RMPR 264, effective July 31, 1945, which requires all those who buy vegetable waxes or beeswax abroad, to file a statement of the whole transaction within two weeks after the purchase. The reports must be sent to the Rubber, Chemicals and Drugs Price Branch of OPA. Details about the data required in the report may be obtained from OPA.

#### PRESSURE FOR ALCOHOL RELIEVED

The good news is that the supply of alcohol will be maintained during August, and in all likelihood thereafter, at the general average which prevailed in 1941. This means the sales of the industry can be sustained at the present substantial volume. Distillers have been asked by WPB to produce not more than 70 per cent of their capacity of industrial alcohol during August and September because the actual need of industrial alcohol has decreased. It is hoped that the governing Order, M-69, may be revoked in October. Meanwhile, the Department of Agriculture has prohibited the use of grain to make alcohol. The pressure for alcohol has been relieved because there is a great reduction in the need for the manufacture of rubber. Butadine comes in satisfactory quantities from petroleum plants, and over-all need of rubber has decreased.

#### AROMATIC RAW MATERIALS TIGHT

The basic raw materials that enter into synthetic aromatics continue very tight. The numerous military items still required eat up the materials. The WPB Chemicals Bureau apparently sees no relief in sight. Shortly before Chief A. L. Kalish, of the WFA Essential Oils Section, left on a vacation the peppermint oil order was issued as Amendment 6, WFO 81. It permits the industrial users to acquire 75 per cent of the 1945-46 quotas between July 31, and September 30,

1945. However, no user may have a stock on hand which, including what he had on the first of the year, would provide an inventory exceeding his annual quota for any 12-month period ending September 30. Last year the user was permitted to anticipate his 1944-45 quota before October 1, 1944, by acquiring 50 per cent of the 1944-45 quota. This year's quota remains unchanged at 80 per cent for chewing gum, confectionery and miscellaneous items; 85 per cent for dentifrices, and 110 per cent for pharmaceuticals, all quotas based on the 1941 usage.

The Department of Agriculture, through the Office of Foreign Agricultural Relations, reports that the present production of bay rum in Puerto Rico ranges from \$20,000 to \$30,000 a year. In 1939 the bay oil brought \$2.50 a pound, dropped to 80c. in 1941, and now has risen to \$1.40. The opinion in Government is that the marketing of bay oil could be materially increased with an organized sales program, now absent. It is suggested the oil could be used for a number of purposes, including flavors for sauces, and by extracting eugenol for use in producing carnation perfumes. The present production of the bay oil, under the irregular system, ranges from 2000 to 25,000 pounds per year, with 4000 to 16,000 gallons bay rum. There are only a few scattered growers in the central and southern sections of Puerto Rico. Harvesting and distillation is delayed until other work is slack. It appears to be a low-cost product. According to Messrs. N. F. Childers and P. Seguinot Robles, at the Federal Experiment Station, Mayaguez, Puerto Rico, there appears to be considerable prospect of an opportunity for business-like development, both in growing the bay-rum tree, and in producing the various derivatives of the oil.

#### PLANS PHILIPPINE DISTRIBUTION

The interesting FEA item is the plan to purchase \$50,000 to \$75,000 worth of toothpaste, shaving creams, face and body powders, and lipstick, which will be sent to the Philippines to be distributed (through retailers, presumably) in areas where the morale of the people needs a boost. The FEA calls this "incentive purchase," meaning it is designed to give the Philippinos encouragement to

produce hemp, quinine, cocoanut for oil and copra, sugar, and many other products we need badly. There is some likelihood that this type of morale-building will be substantially expanded as soon as it is revealed how they react. Any one who has been among them will not have the least doubt about the efficacy of perfumes, powders, lipsticks, toothpaste, shaving creams, toilet soaps, and similar supplies, in lifting the morale of the people of the Philippines. They have become accustomed to our way of life, and they have always liked these things, both women and men. Friends of the industry here regard this action by FEA as a very distinct compliment to the cosmetics and perfume industry giving recognition to the worth of its products in restoring the health and balance of war-shattered people. It is likely the same principle will apply to other sections of the Far East when this war is over.

It is generally assumed here that when and if old man Ickes gets some of the coal he is fighting about over to Europe, the factories, reported in good condition, will use the product of the flowers, reported healthy and sound, to make the perfumes as well as essential oils, which it is believed the women of America are eager to obtain. Some vague source of Government has made a survey which turned up the fact that French perfumes have held their prestige, and that women are waiting for them to be placed on the market again.

It also is an interesting item to learn that SHAD, the Caribbean organization, expects in Haiti to expand the 25 acres which now are devoted to the production of citronella Java type grass. If certain irritating details can be adjusted, the expansion may be substantial. FEA has announced some types of Italian products may be had through the Consorio Agrario Provinciale, Florence, Italy. Letters or cables may be addressed to organization direct.

#### PRIVATE TRADE RESTORED

FEA reports that private trade with Algeria, French Morocco, and Tunisia has been restored. The War Shipping Administration sent out an enthusiastic message about the strong "upswing" in trade with the West Coast of South America. Trade has also been restored with Aden, Kamran Island, Perim Island, Sokotra

Island, Anglo-Egyptian Sudan, Somaliland, Cyprus, Egypt, Eritrea, Ethiopia, Iran, Iraq, Khorya-Morya Island, Libya, Cyrenaica, Tripolitania, Palestine, Saudi Arabia, Syria, Lebanon, Trans-Jordan, and Yemen. From FEA came the word that J. C. Horney has left that organization to go back to New York to rejoin the staff of van Ameringen-Haebler, Inc.

#### PACKAGING LUMBER STILL SCARCE

Lumber is getting still scarcer. The pulp brought from Europe comes solely from Sweden, and is almost entirely destined for use as newsprint. The supply of containers therefore is not expected to improve, at least not before next year. However, Direction 4, Order P-146, which became effective on July 4, is expected to make more Christmas boxes available for overseas. Wholesale purchasers must use Form WPB-2408 as authorizations. WPB stated there should be abundant mailing cartons for overseas Christmas mailing. Packages must be mailed between September 15 and October 15. Despite recommendations of the Industry Advisory Committees, it is certain controls over manufacture, delivery and use of fiber shipping containers, involving L-317 and P-46, will not be revoked this year.

The difficulty in the glass bottle industry is solely labor. The situation has not interfered with production under existing quotas, but it does create unexpected incidents. Glass container manufacturers have been authorized to make new glass molds for experiments. Lead is still one of the most critical materials. Under the quotas established for individual manufacturers, collapsible tubes may be distributed without direction from WPB as the distribution may be worked out between the producers and distributors during the third quarter.

#### SURPLUS DISPOSAL PROBLEMS

William S. Bradley, director, Office of Surplus Property, Department of Commerce, has reported that there are eight general classifications of goods currently being offered by his office. The eighth group is made up of toiletries, cosmetics, and soap; also medical and surgical supplies, and household chemical preparations. Toiletries, cosmetics, and soap, are sold to distributors. Some of the arti-

cles have been sold in various places. Those who wish to make a sealed bid are provided with copies of the Surplus Reporter. The details may be arranged by applying to the nearest Regional Office of Surplus Property of the Department of Commerce, which are located in Boston, New York City, Washington, D. C., Cincinnati, Chicago, Atlanta, Fort Worth, Kansas City, Denver, San Francisco, and Seattle. Although a substantial volume has already been sold, it is impossible to secure figures. The entire plan of surplus disposal is under re-adjustment.

During the past months it was found that the three-man Surplus Property Board did not work. Senator Guy Gillette and his two associates, Lt.-Col. Edward Heller and former Governor Edward Hurley, of Connecticut, were in consistent disagreement. Senator Gillette finally resigned and advised his close friend, President Truman, to place the whole disposal program under the direction of one man. The President has asked the Congress to amend the law in order to make it possible to appoint a Czar of Surplus disposal. It is anticipated Congress will tackle the job when it returns from its vacation in October. It has been found the present law is unworkable in many ways. It provides 285,000 preferences in favor of states, cities, towns, counties, and institutions, and millions of preferences for veterans, small business men and farmers. It also was discovered there are 250 separate laws on the books which enable all Government agencies to sell surplus property without submitting to the direction of the Surplus Property Board. There is assumed to be over \$100,000,000,000 worth of surplus which must be disposed of in some way when the war is over. The real problem will not appear until the end of the war when the surplus will pour from all agencies located practically in every part of the world as well as in the United States. The total constitutes practically one-third of the stupendous sum we have spent on the war. Apparently no one really knows, yet, the true solution of the problem.

There is a growing feeling in Washington that anything which cannot be used by Government itself, or which competes with existing industry or distribution, should simply be destroyed in order to avoid the chaos

which would result if this colossal assemblage of used or new property is allowed to pour like a tidal wave into the market in competition with the products of the workers and the industries which will be desperately trying to resume peacetime existence. Even as scrap most of it would knock the bottom out of the market. It has already been paid for once, and the salvage to the Government, or the taxpayer, apparently would not bring as much as 10 per cent of the original cost to the Government. Present sales prices range from infinitesimal fractions to 25 per cent of the original cost.

The surplus disposal problem is one of the most serious troubles that confront the President, as a part of the reconversion program. Reconversion at present is regarded as a tremendous muddle.

#### BEAUTY SERVICE DEMANDS CLIMB

Miss Frances M. Coston, an industrial expert in the Department of Commerce, has issued a formal statement in which she maintains that the number of beauty parlors, and their total receipts, will reach an unprecedented level after the war. She says in the past ten years the average sum spent in beauty shops by women, between 16 and 60, per year, has risen steeply. During the six years between 1933 and 1939 the average doubled; she does not attempt to give figures for the six years since 1939, but she emphasizes that the demand for the service is climbing, according to latest surveys. She appears to think that the increase will continue despite any economic or social turmoil that may occur.

#### WPB LISTS CRITICAL ITEMS

The latest list of supercritical items, issued by WPB, includes hydrogen peroxide, laboratory equipment of any kind, lead, talc, tin, wax, zinc, and zinc oxide. . . . Department of Commerce reports wares, such as perfume and cosmetics and other toiletries have sold in volumes that had increased from 4 per cent to 9 per cent during the past year. Department stores, which usually have a decline in sales from May to June, this year, according to the Federal Reserve Board latest report, increased 15 per cent in June, and were increasing at the rate of 23 per cent late in July, over last year.

# PARASEPT<sup>\*</sup>

Esters of parahydroxybenzoic acid...neutral white powders of value as

## PRESERVATIVES

### METHYL PARASEPT

(Methyl Parahydroxybenzoate, N. F.)

### ETHYL PARASEPT

(Ethyl Parahydroxybenzoate)

### PROPYL PARASEPT

(Propyl Parahydroxybenzoate)

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(Butyl Parahydroxybenzoate)

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Available in both Purified and Technical Grades

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For products containing gums, mucilage, glue, carbohydrates, fats and oils and many other materials which are subject to decay through mold growth, fungus formation or yeast and bacterial action.

Still available are a limited number of reprints of "THE ESTERS OF PARAHYDROXYBENZOIC ACID AS PRESERVATIVES". This reprint includes a comprehensive literature review. To secure a copy, we suggest you write at once.



# HEYDEN Chemical Corporation

393 SEVENTH AVENUE, NEW YORK 1, N. Y.

Benzaldehyde • Benzotenes • Benzoic Acid • Benzyl Chloride • Bromides • Chlorinated Aromatics • Medicinal Creosotes • Formates • Formaldehyde • Formic Acid • Glycerophosphates • Medicinal Goujusols • Hexamethylenetetramine • Paraformaldehyde • Parahydroxybenzoates • Penicillin • Pentaerythritols • Salicylates

## NEW PRODUCTS AND PROCESSES

### Cement Dustproofer

A new liquid, "Synkrete," is available for use on dusting cement floors. In use, it may be applied with a brush, mop or sprinkler to saturate an area.

Its makers state that it penetrates to fill pores and react with the cement to harden into a rocklike mass. It is said that floors are usable in a few minutes, although reaction is not complete for several days.

Synkrete is a product of the Synthex Products Co.

### Self-Bonding Flooring

A new flooring, known as Stonoleum, has been placed on the market by the Continental Asbestos & Refining Corp.

It may be laid directly over old concrete and its makers state that it does not dust, crack, pit or crumble. It is resilient and self "healing."

Copies of a bulletin describing this flooring may be obtained upon request.

### Fluorescent Fixtures

A new type of fluorescent fixture designed for architectural harmony and offering easy cleaning facilities has been placed on the market by R. & W. Wiley, Inc. The fixture, called "Recessed Troffer," is equipped with a glass shield, which may be removed for cleaning or tube changes by one man. No tools are required. The fixture is of welded steel construction, with inside reflector and louvers finished in 85 per cent reflection polymerized white, infra-red baked at 300°.

### Hand Operated Suction Pump

A new hand operated suction pump, built of an inert plastic, has been placed on the market by the Alden Speare's Sons Co.

Designed primarily for the safe handling of acids, it attaches to acid carboys of from 5 to 13 gallon capacity. Its makers state that it will stand

immersion in practically all grades and kinds of commercial acids. Quickly and easily installed, it eliminates the hazard of juggling heavy carboys.



Suction Pump

As the plastic is unaffected by alcohols, oils or water, it also has a wide range of usefulness in transferring liquids such as bulk perfumes, essences, flavoring extracts, syrups and liquid soaps from barrels or drums where attack of the liquid on a metal pump might cause undesirable contamination.

### Purified Sodium Alginate

Innis, Speiden & Co. is offering a highly purified form of sodium alginate under the name "Isco Algin."

Its makers state that its chemical salt content is insignificant and that it is very quickly soluble.

### New Catalogs

A new 12-page booklet, "3-M Adhesives in Industry," which should be interesting and helpful to users of adhesives, sealers, coating or insulating compounds has been announced by the Minnesota Mining & Manufacturing Co.

The booklet illustrates and de-

scribes adhesive operations in different industries, methods of application and a listing of physical properties. It lists various formulae and shows viscosity, bonding range, color, weight, characteristics and uses. Each booklet contains an adhesive project sheet for the analysis of adhesive problems. Copies are distributed free.

A new over-all program approach has been prepared by Kay, Inc., for large users of point of sale material. The book sets forth, in detail, methods of building and integrated point of sale program. A limited edition is offered for examination only.

Dodge & Olcott, Inc., New York, N. Y., has issued a new wholesale price list. Copies may be obtained without cost.

### Book Reviews

ADSORPTION, C. L. Mantell, 386 pages. Illustrated and Indexed. McGraw-Hill Book Co., New York, N. Y. Price \$4.50.

A practical as well as theoretical discussion of adsorption is developed in this new book. It covers adsorption in refining operations, air conditioning, eliminating of toxic materials, etc. Flow sheets are used. This is a well-written book in a rapidly growing field.

COMMERCIAL WAXES, H. Bennett. 583 pages, illustrated and indexed. Chemical Publishing Co., Inc., Brooklyn, N. Y. Price \$11.00.

This book, written for the chemist, industrial worker or student, contains up-to-date information on all classes of waxes. Melting point, form and fracture, purity, hardness, flexibility, mouldability, adhesive ness, solubility and many other properties, including sources and uses, and tables of compatibilities of waxes are included.



# Exotic SUPREME

...capturing for your practical needs...in this superb interpretation of its subtle fragrance...the mystery of the exotic mood...

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...delicate appeal...amazing practical application...An essence supreme...

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## AMONG OUR FRIENDS

► Jere Henshaw has been promoted to sales manager of Associated Products, Inc., Chicago, Ill. He was formerly sales promotion manager of the firm.

Before that time he was vice-president and general sales manager of Elmo Sales Corp., and more recently sales manager of Endocreme, Inc. His affiliation with Associated Products, Inc., has been since March, 1945.

► J. L. Hindle of Standard Synthetics, Inc., New York, N. Y., left for England on July 30, where he is attending to the affairs of the London offices and plant of that country.

After completing arrangements for importing and exporting essential oils, flavors and perfumery materials in London, Mr. Hindle will return to New York in the Fall.

In the meantime, James Lane, vice-president, will be in charge of the home office, and will direct the firm's business interests throughout the United States, Canada and Latin America.

► John A. Rodda, who has recently resigned after two and one-half years' service as Chief of the Insecticides and Fungicides Unit, Chemicals Section, has joined Dodge & Olcott, Inc., New York, N. Y., where he will serve as assistant manager of the Insecticide Department, and be in charge of sales.

Prior to his service with the War Production Board, Mr. Rodda had broad experience in the insecticide business, initially with McCormick & Co., and later with the Mechling Chemical Division of General Chemical Co.

Dodge & Olcott, Inc., was recently purchased by U. S. Industrial Chemicals, Inc., and its insecticide department which originally comprised only

pyrethrum and rotenone materials, and which attained prominence several years ago through the development of purified pyrethrum extract used in the military aerosol program, has been expanded to include a number of new synthetic organic insecticides and insect repellents.

► A. R. Eberhardt has joined George Lueders & Co., New York, N. Y., as a representative in the states of Wisconsin, Nebraska, Iowa, Arkansas, Oklahoma, and in Fargo, N. D., Sioux Falls, S. D., Kansas City and St. Joseph, Mo., and Denver, Colo.

► Lt. Bernard d'Escayrac has resumed his position as president of Guerlain, Inc., New York, N. Y., after an absence of more than two years.

Lt. d'Escayrac volunteered his services and went through combat training in Ft. Benning, Georgia. He landed with the U. S. Army at the time of its invasion of North Africa. Most of his time was spent in and around Oran and Casablanca. He fought through the Italian campaign, and landed in the South of France at the time that phase of the European war was in progress.

He arrived in New York on July 17 by Transatlantic Clipper after serving for eighteen months with the French First Army. Lt. d'Escayrac acted as liaison officer between the French and U. S. forces. He was decorated with the Croix de Guerre and the Bronze Star.

► Miss Jane Ruth was married to Lawrence Carter in St. Patrick Cathedral, New York, N. Y., on July 14. Mr. Carter is the son of Mrs. Mabel Ogilvie Carter, president of Ogilvie Sisters' Salons.

► William F. Zimmerman, head of the company that bears his name, and Mrs. Zimmerman celebrated the twentieth anniversary of their marriage at the Forest Hill Field Club, Bloomfield, N. J., July 25. Twenty guests gathered at the club to help make the occasion one long to be remembered. Mr. Zimmerman is one of the co-founders of the BIMS and is well known throughout the toilet goods industry with which he has been connected in an executive capacity for many years.

► Gust Carsch, chemist for Lady Esther, Ltd., Chicago, Ill., and Mrs. Carsch have been enjoying a vacation in Colorado.

► Dr. Otto H. Sobell, formerly chief chemist and technical director of the J. R. Watkins Co., has been appointed chief chemist in charge of research and production for Helena Rubinstein, Inc., New York, N. Y., and its affiliated companies. Dr. Sobell was educated abroad and has had wide experience in the development and manufacture of perfumes and cosmetics. In fact, several perfumes now known throughout the world were created by Dr. Sobell during the years he was engaged in the industry in France. Some interesting new developments may be looked for as a result of the addition of Dr. Sobell to the executive staff of Helena Rubinstein, Inc., and its affiliated companies.

► Leonore Buehler has been appointed advertising manager of Prince Matchabelli, Inc., New York, N. Y. Miss

Buehler was formerly publicity director of Richard Hudnut, and also handled the advertising for the DuBarry Success School. During her previous connections with Kenyon & Eckhardt, G. Lynn Sumner

and, for twelve years, with Henry Sell at the Blaker Agency, she devoted a good deal of her time to the advertising and promotion of Richard Hudnut. Her new duties include publicity and promotional ideas, as well as advertising.



Jere Henshaw



Lt. Bernard d'Escayrac



Leonore Buehler

# Ammonium Thioglycollate by Summit

**T**HREE is reason for the preference given Ammonium Thioglycollate by Summit by the most successful manufacturers of cold wave solutions: it is made by the foremost manufacturer of this product . . . its uniformity, stability, purity, and freedom from iron and by-products are assured by rigid control . . . its reasonable price reflects the economies of large-scale production.

Ammonium Thioglycollate by Summit is supplied exclusively in concentrated form; Summit does not supply solutions ready to use, in bulk or otherwise.

Summit has also developed highly effective clouding agents and perfumes for cold wave solutions. Samples will gladly be sent upon request.

**SUMMIT CHEMICAL PRODUCTS CORP.**  
*Manufacturing Chemists*

11 WILLIAM STREET, BELLEVILLE 9, NEW JERSEY



Colonel Charles H. Berle has been appointed coordinator of sales and manufacturing for Innis, Speiden & Co., New York, N. Y.

Associated with Innis, Speiden & Co. since 1926, Col. Berle was called to active duty by the Army in 1941 and returned to inactive reserve status in June, 1945. His principal assignments included: Staff Officer with Lt. Gen. Robert C. Richardson, Commanding General Pacific Ocean Areas; Commanding Officer, 21st C. A. Regt. and Acting Post Commander, Fort Miles, Del.

The office of the Coordinator is located in the company's general office at 117 Liberty St., New York 6, N. Y.

Dr. Alexander E. Katz, of Flora-synth Laboratories, Inc., New York, N. Y., delivered an address recently to a large audience consisting of the faculty and student body of the College of Pharmacy, University of Southern California.

His lecture was on the subject of the California production of national products. He also showed motion pictures on the growth and processing of vanillas, as well as Flora-synth Laboratories research and production activities.

Lieut. Andre Sussman, son of Richard Sussman of Moneau Corp., New York, N. Y., is home with his parents with an exciting and brilliant military career to his credit. He enlisted in the French army in 1939, was taken prisoner and escaped. He then re-enlisted as a paratrooper taking part in the D-Day invasion. All told he was wounded three times. For his services he was awarded the bronze star pendant with oak leaf cluster, the purple heart cluster and the French Croix de Guerre.

Capt. Sewell H. Corkran, Jr., son of Sewell H. Corkran, metropolitan representative for A. H. Wirz, Inc., and the E. N. Rowell Co., has been awarded the bronze star pendant for conspicuous gallantry in action on the Western front. Latest word re-



Charles H. Berle

ceived from him indicated that he was the head of a military district governing over 15 towns in the Bavarian Alps. Capt. Corkran enlisted in the Connecticut National Guard in February, 1941, as a private but rapidly rose in the ranks to his present position. When he is demobilized he expects to rejoin his father in the business with which the latter has been associated for many years.

E. W. Biggs, has joined Heyden Chemical Corp., New York, N. Y., and will represent the organization in Pennsylvania and Western New York. Just recently he has been chief of the Aldehyde Unit, Chemicals Bureau, War Production Board. Before that he was a division manager for The Drackett Products Co.

Arthur F. Peterson has been appointed sales manager of the biologics department of the Heyden Chemical Corp., New York, N. Y.

Mr. Peterson was manager of the domestic sales division of Schering Corp., for several years. Previously he was associated with E. R. Squibb & Sons. He is a native of Minnesota, and graduated from the University of Minnesota.

He is chairman of the Sales and Advertising Committee, Eastern Section, American Pharmaceutical Manufacturers Association, and a member of the Sales Executives Club and of the New York Pharmaceutical Advertising Club.

John T. Batson has been appointed chief of the Drug and Cosmetic Section of the Chemical Division of the War Production Board.

Paul H. Ganz has been made director of Golden Arrow Toiletries and Cosmetics, New York, N. Y. Mr. Ganz has been identified with the perfume industry for the past twelve years during which time he was responsible for the importation of Weil perfumes to this country. Later he owned the Matchabelli Co. for five years. He is a native New Yorker, and attended the University of Pennsylvania.

W. G. Bywater, Ph.D., has been appointed director of research of S. B. Penick & Co., New York, N. Y.

A native of Utah, Dr. Bywater received A. B. and M. A. degrees, from the University of that state; later working in chemistry with Professor Henry Gilman at Iowa State College to attain a Ph.D. degree.

In connection with Penick research plans, it is announced that complete reorganization and expansion of the present laboratory has begun, and new building is contemplated. The company expects to erect a research building on land adjacent to its Lyndhurst, N. J., plant.

Ralph W. Henderson, vice-president and general plant manager for William R. Warner & Co., New York, N. Y., has been made a director. John M. Leach, vice-president and house counsel, has also been made a director of the company.

J. P. Pompa, formerly of the Standard Pharmaceutical Co., is now associated with J. R. Watkins & Co., Winona, Minn., as chief chemist.

Col. George W. Perkins has been re-elected executive vice-president and treasurer of Merck & Co., Inc., Rahway, N. J. Col. Perkins, who is also a director of the company, has been on leave of absence since April, 1942. On duty with the Army, he served as chief of the Field Requirements Division, Field Operations Command, Chemical Warfare Service. He was awarded the Legion of Merit. He has served in both the European and Pacific theatres of operations, and most recently was stationed in Washington.

Nat Otte, secretary of the Drug, Cosmetic and Chemical Credit Men's Assn., New York, N. Y., has received word that his son, Jr. Lieut. Robert Otte, has been through his 24th landing operation in the Pacific area and is now in Borneo. His younger son, Cadet Midshipman William Otte, is at Kings Point, L. I.

# N ews and events

## F. T. Dodge a Director of USI, and Glenn Haskell a Director of D & O

Francis T. Dodge, president of Dodge & Olcott, Inc., has been elected a director of U. S. Industrial Chemicals, Inc., New York, N. Y., which recently acquired the assets and business of the 147-year-old essential oil house. Stockholders also elected Glenn L. Haskell, president of U. S. Industrial Chemicals, Inc., a director of Dodge & Olcott, Inc. Bracebridge H. Young was elected vice-president and secretary and Thomas Casson was elected comptroller of U. S. Industrial Chemicals, Inc.

U. S. I. recently issued 60,000 new shares of stock which were used exclusively to acquire the Dodge & Olcott Co. Sales of the company before the acquisition of Dodge & Olcott Co. were running above \$40,000,000 annually. D. & O. sales of over \$9,000,000 in 1944 will be higher in 1945. D. & O. earnings in 1944 were about \$1,350,000 before taxes with a net after taxes of slightly less than \$300,000.

## TGMA Holds Seventeenth Annual Convention

This year's annual convention of the Toilet Goods Manufacturers' Association was held at the Manoir Richelieu, Murray Bay, Canada, on June 15 to 18. It was the seventeenth annual convention held by the association. Over three hundred members and guests attended, with many representatives from the United States present.

The business meeting was key-

noted around postwar plans intended to benefit the entire industry. President A. C. Nielsen spoke on "What's Ahead in Consumer Sales."

The election of officers for the coming year showed the following results: Past president, R. F. Merkley; president, Fred Crowhurst; first vice-president, G. Walter Brown; second vice-president, L. T. Ridler; treasurer, P. P. Powell; secretary, F. C. Wilckens; executive secretary-treasurer, A. E. Laverty.

The following were elected to the executive board: S. H. Beardmore, John A. Huston, T. Conway James, G. H. Bourassa, T. A. McGillivray, J. T. Wait and F. L. Jackson.

C. W. Stephens carried off the Fritzsche Brothers Trophy, and George Eadie the Fielder Trophy, in golf.

## Lenthalic Offers Beauty Course to Sales Girls

Lenthalic, Inc., New York, N. Y., is making available the eight-week course of the Cosmetic School of Beauty Fashion to all its qualified cosmetic saleswomen throughout the country.

This represents quite an advanced step in making retail representatives qualified as beauty consultants, as they will be able to better serve customers.

The course is conducted by correspondence, and is completed with a group examination. All expenses are paid by Lenthalic. Selection of the candidates is based on a minimum of one year's service with Lenthalic and a definite interest in beauty service.

## William Brooks Detective

William Brooks, of Syntomatic Corp., New York, N. Y., is not only adept at sleuthing out new customers, but also proved his mettle at the real thing.

WOR maintains a program named "Calling All Detectives." As conducted, a mystery is partially solved, then people at random are phoned to give their version of the play's end.

Mr. Brooks was one of those fortunate enough to be called recently. His correct answer was rewarded by a \$100 War Bond.

## Castor Oil Placed on Allocation

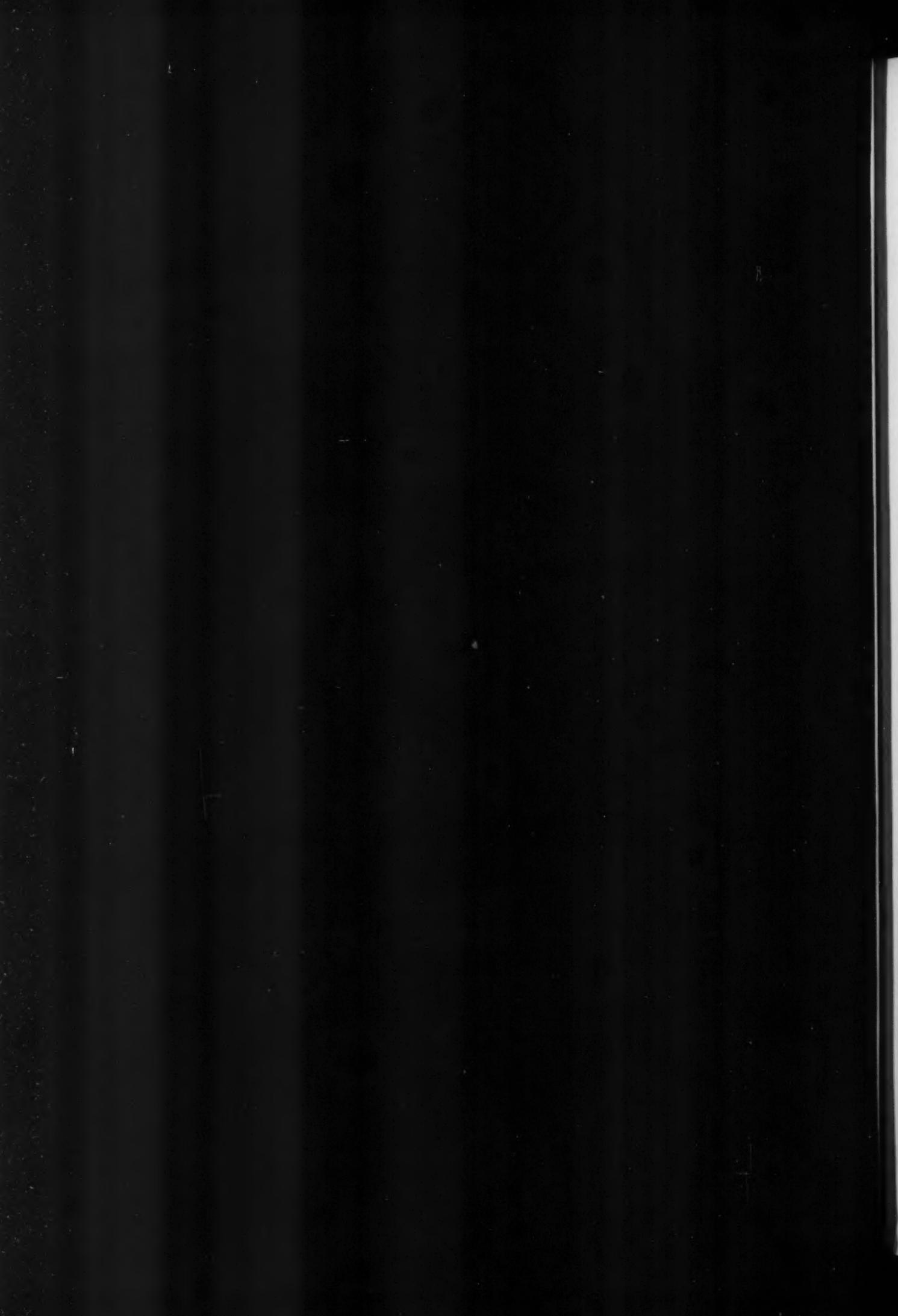
Castor oil has been placed on allocation through War Food Order 137. Users must obtain authorization from the War Food Administration to use or accept delivery of castor oil. Forms 477 and 478 should be used for this purpose. Permission must be obtained from the Fats and Oils Branch, Office of Marketing Services, WFA, Washington 25, D. C.

## Bristol-Myers Declares Dividend

Bristol-Myers Co., New York, N. Y., has declared a dividend of 50 cents per common share, payable Sept. 1.

Tentative consolidated income statement of the company and Canadian subsidiaries indicates net earnings of \$511,582 for the three months ending June 30. These earnings are after all charges, reserves, and a provision of \$1,148,760 for income and excess profits tax.





# U.S.I. CHEMICAL NEWS

August ★ A Monthly Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1945

## Two Multi-Purpose Non-Phthalic Resins of Proven Practicality

### Aroplaz 1125 & 1127 Are Fine Enamel Liquids for Brush, Spray or Dip Use

These two oxidizing, modified alkyd resins, S&W Aroplaz 1125 and S&W Aroplaz 1127, are highly successful alternates for phthalic alkyds in the preparation of coatings. Both resins have excellent initial color and color retention, making them suitable for whites and light tints. Initial gloss and gloss retention are excellent in both. Exterior durability is good, making them useful in exterior coatings where exposure is not severe, as well as for a wide range of interior applications. Use of reactive pigments with these resins should be avoided.

#### Probable Availability

Phthalic-free, these resins are more available than phthalic alkyds, although uses are still limited to some extent (Allocation Order M-300, Schedule 103). They will probably be available for uses such as industrial equipment, tools, machinery, interior marine finishes, new farm implements, food-container exteriors and transportation equipment.

S&W Aroplaz 1125 is supplied in mineral spirits, and is adapted to a wide range of applications. It has good overnight drying properties, and light-colored bake finishes are obtainable in one hour at 200 F.

S&W Aroplaz 1127 is supplied in VM&P Naphtha, a faster-evaporating solvent. The resin is faster drying than "1125". It air-dries hard in 8-10 hours, and bakes in one-half hour at 200 F.

Samples of both resins, and additional data are available on request.

#### SPECIFICATIONS

S&W Aroplaz 1125		S&W Aroplaz 1127	
Solids	50% in MS	50% in VM&P Naphtha	
Solution Viscosity (G-H)	8-11	8-11	
" Color (G-H)	9-11	9-11	
" Wt./gallon @ 25°C	7.5 lbs.	7.4 lbs.	
Plastic Acid No.	22-28	22-30	

## Lactylactic Esters Made By New, Faster Process

Lactylactic esters, valuable as solvents and plasticizers, may be produced on a commercial scale by use of an invention dedicated to the free use of the people of the United States. The esters produced by this process are said to be colorless, odorless, and of high molecular weight and low vapor pressure.

Essentially the new process comprises heating a dehydrated lactide with anhydrous mono- or poly-hydric alcohols in the presence of an acid catalyst. When the alcohol used is anhydrous ethanol, the end product is ethyl lactate, a colorless, odorless, slightly viscous liquid. From n-butanol, n-butyl-lactylate is produced, while ethylene glycol produces water-soluble beta-hydroxyethyl lactylate.

## Ethanol-Water Fractionating of Proteins Points Way to Improved Immune Serums

### Higher production of Pyrogen-Free Serums Forecast

Tetanus antitoxin to be produced by a new method will not cause the chills so often accompanying use of this antitoxin, nor will pyrogen-induced fevers follow use of any serum properly produced by the new process.

#### U.S.I. Offers Aid in Insectifuge Formulation

#### Indalone Continues Available for Civilian End Products

Following up its recent announcement of the availability of Indalone for civilian use, U. S. Industrial Chemicals Inc., is now offering technical assistance to companies interested in the manufacture of insect repellents. Significant progress in the field of insectifuges has been made as a result of the war and the necessity for carrying the fight to the enemy in many insect-infested areas. In its intensified research on a wide range of insectifuge products, U.S.I. has acquired "know-how" that should prove valuable to producers of insectifuges, suntan lotions and similar products in which it is desired to incorporate insect-repellent properties.

#### War Use

The war-time scarcity of Indalone has resulted from the tremendously stepped up demands of our Armed Forces. In the tropics, Indalone has rendered yeoman service in the fight against malaria. On practically every front, it has had a part in minimizing the insect menace that can have such serious effects on troop morale and fighting efficiency.

Indalone is highly effective all-round repellent. It is easy to apply and its effect is long lasting. Indalone has some light-screening properties of its own and can also be combined with other light screening chemicals such as U.S.I.'s BK-5.

Separation of various protein fractions of blood plasma by ethanol-water fractionating, at low temperatures, was first used on a large-scale basis in production of serum albumin. However, this use of ethanol-water fractionating will probably be overshadowed by its use in making improved immune serums.

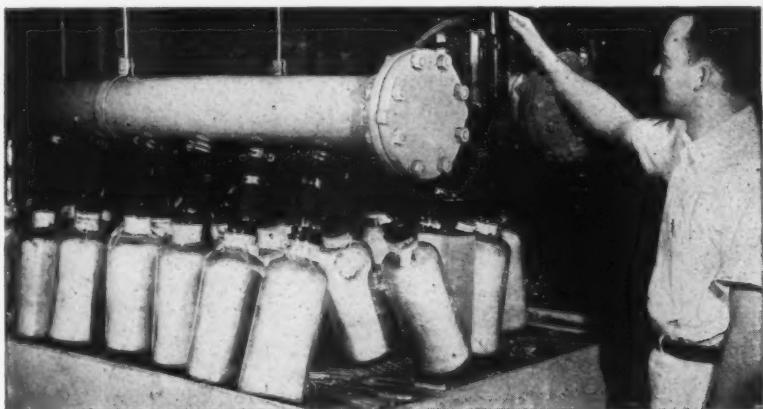
While finished serums and antitoxins produced by the usual salting-out-and-in process are free from bacterial contamination, few of them are free from pyrogens. It is virtually impossible to prevent entry of air-borne bacteria into the blood plasma during separation of the protein fraction which contains the anti-bodies. Growth of these bacteria results in fever-inducing pyrogens. With ethanol-water fractionating, the protein separation takes place at a temperature so low that pyrogens cannot develop, for the bacteria cannot grow.

At Lederle Laboratories, production of serum albumin led to interest in further possibilities of the ethanol-water process. They expect that the current loss of sera during processing will be materially reduced by ethanol-water fractionating. Purer products, too, are anticipated, as the new fractionating process is more exact, and is less dependent upon the operator's judgment.

#### Principle of the New Process

Certain details of ethanol-water fractionating at reduced temperatures are still under the protective cloak of secrecy. However, it depends upon physical-chemical principles far more complex than ethanol-precipitation. In practice, it is found that the five main blood proteins—alpha, beta and gamma globulin, fibrinogen and serum albumin—each separate

(Continued on next page)



Dehydrating a protein fraction of blood at the Upjohn Laboratories. This is done from the shell-frozen state, under vacuum.

## Ethanol-Water Fractionating

(Continued from preceding page)

from plasma at a different ethanol-water proportion and at a different decreased temperature. For instance, the gamma globulin, which carries with it the immunizing anti-bodies separates from 20% ethanol-water solution at 0 C. Thus the desired protein fraction may be removed by the proper adjustment of solution and temperature, with minimum contamination from undesired protein fractions.

### Shell-freezing Dehydration

For special uses, a dehydrated immune serum may be among the postwar developments. While it would require reconstituting with pyrogen-free water, it would enjoy certain advantages of stability and storability over the usual liquid serums.

Here the shell-freezing method of dehydration, put to large-scale use in blood plasma and penicillin processing, would come into use. This dehydration method takes advantage of the same principle which causes washing to dry faster when frozen on the line than it does in the summer. The substance to be dehydrated, whether plasma, penicillin or immune serum, is frozen at a temperature of about minus 25 C in a bath of ethanol and dry ice. Constant rotation of the bottles while freezing causes a shell of frozen material to form on the inside of the bottle.

Following shell-freezing, the dehydration takes place in a room where the temperature is maintained at a level low enough so that the shell remains frozen while a vacuum pump sucks the moisture from it. Vapor removed from the frozen shell is passed over a block of dry ice so that the moisture will condense on it and avoid formation of frost inside the vacuum pump.

### Other New Products

Uses are being developed for the other protein fractions of blood separated by ethanol-water fractionating. From fibrinogen, fibrin foam has been developed as a hemostatic agent to control bleeding. Fibrin films and plastics suggest many surgical uses. Gamma globulin, remaining after the separation of serum albumin from human blood serum, is finding use in the prevention and treatment of measles. Another fraction is used in the treatment of burns.

Any industry which works with proteins (for example, the adhesives industry) may discover ways to use this new ethanol-water fractionating at reduced temperatures.

## Water-Repellent Fabrics Are Permanent, Washable

A newly patented process promises water-repellent fabrics which not only are soft and full fabrics, but washable ones as well. Described as permanent, this new finish for application to textiles is essentially a mixture of butanol-reacted melamine-aldehyde condensation product and a salt of an alkoxypropylamine.

In one method of preparation of the new finish, 3-N-octadecoxypropionitrile was hydrogenated at 110 C under a pressure of 300 to 1200 lbs. per sq. in. in the presence of a Raney nickel catalyst. The resulting product was largely converted into a secondary amine by the application of heat. This was dissolved in a solution of the butyl reaction product of tetramethyl melamine and a mixture of butyl alcohol and xylene.

Addition of water in sufficient quantities resulted in a fluid emulsion of the oil-in-water type. At 67 deg. F this emulsion becomes a paste which is diluted with several times its volume of water, and used as a fabric finish. The finish is cured by subjecting it to a temperature of 285 F for approximately four minutes.



At Lederle's Pearl River laboratories, plasma is dried using the principle that makes frozen wash faster. The first step, shown above, is to freeze a shell of plasma on the inside of the bottle by revolving the bottle in a bath of ethanol and dry ice. (Temperature, -70 C.)

### TECHNICAL DEVELOPMENTS

Further information on these items may be obtained by writing to U.S.I.

**A new resin adhesive** is described as a fast-setting, solvent-free, synthetic resin emulsion which not only acts as an adhesive for a wide range of materials, but also serves as a waterproof label overcoating. (No. 963)

USI

**A zinc chromate replacement**, said to be an excellent and inexpensive alternate for scarce zinc chromate, is described as a slate-gray graphic muscovite compound found in mica crystals. (No. 964)

USI

**Lacquer-removing cleansing cream**, said to be free from toxic or explosive solvents is described as being for after-work application, and as making the use of masking creams unnecessary. (No. 965)

USI

**A new germicide**, for use in soap manufacture, is claimed to be effective against staphylococcus, and to be non-toxic and non-irritating. Product is said to be able to permanently reduce bacterial flora on the skin. (No. 966)

USI

**To determine strain in plastics**, a polarizer is described as being small, light-weight, simple in construction and easy to use. (No. 967)

USI

**A new anhydride** intermediate and compounding chemical, in which all four hydrogens in the phthalic anhydride molecule have been displaced by chlorine, is described as being a free-flowing, white, non-hygroscopic powder that melts at 254-255 C. As it is said to be non-toxic, it is recommended for pharmaceuticals as well as esters, plasticizers, coatings and so forth. (No. 968)

USI

**A synthetic rubber cement**, described as being about  $\frac{1}{2}$  stronger than cement made from natural rubber, is offered. (No. 969)

USI

**Higher wet strength** is claimed for glassine packaging papers produced by a new resin-impregnating process. These papers are available plain, laminated, waxed or lacquered. (No. 970)

USI

**A new cellulose-acetate** molding material is said to be flame-resistant, odorless, colorable, humidity resistant, and tough; it is recommended for injection molding. (No. 971)

USI

**A new antiseptic**, stated to be many times more potent than available sulfonamides is now offered in small quantities for experimental use. Product is said to be non-staining, effective in the presence of pus, and to have a wide bacterial spectrum. (No. 972)

USI

## U.S.I. INDUSTRIAL CHEMICALS, INC.

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BRANCHES IN ALL PRINCIPAL CITIES

**ALCOHOLS**  
 Amyl Alcohol  
 Butanol (Normal Butyl Alcohol)  
 Fuel Oil—Refined  
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 Specially Denatured—all regular and anhydrous formulas  
 Completely Denatured—all regular and anhydrous formulas  
 Pure—190 proof, C.P. 96%  
 Absolute  
 \*Super Pyro Anti-freeze  
 \*Solvex Proprietary Solvent  
**ANSOLs**  
 Ansol M  
 Ansol PR  
 \*Registered Trade Mark

**ACETIC ESTERS**  
 Amyl Acetate  
 Butyl Acetate  
 Ethyl Acetate  
**OXALIC ESTERS**  
 Dibutyl Oxalate  
 Diethyl Oxalate  
**PHTHALIC ESTERS**  
 Diethyl Phthalate  
 Dibutyl Phthalate  
 Diethyl Phthalate  
**OTHER ESTERS**  
 \*Diethyl  
 Diethyl Carbonate  
 Ethyl Chloroformate  
 Ethyl Formate

**INTERMEDIATES**  
 Acetoacetanilide  
 Acetoacet-ortho-aniside  
 Acetoacet-ortho-chloranilide  
 Acetoacet-ortho-toluidide  
 Acetoacet-para-chloranilide  
 Ethyl Acetoacetate  
 Ethyl Benzoylacetate  
 Ethyl Sodium Oxalacetate  
**ETHERS**  
 Ethyl Ether  
 Ethyl Ether Absolute—A.C.S.  
**FEED CONCENTRATES**  
 \*Curby B-G  
 \*Curby Special Liquid  
 \*Vactone 40

**ACETONE**—Chemically Pure  
**RESINS**  
 S&W Ester Gums—all types  
 S&W Congo Gums—raw, fused & esterified  
 S&W \*Aropalz—alkyds and allied materials  
 S&W \*Arofene—pure phenolics  
 S&W \*Arochem—modified types  
 S&W Natural Resins—all standard grades  
**OTHER PRODUCTS**  
 Collodions  
 Ethylene Glycol  
 Indalone  
 Nitrocellulose Solutions  
 Urethane





**Kolmar Laboratories**  
Canadian Affiliation

Wilckens Chemical & Cosmetic Laboratories, Ltd., Toronto, Canada, has become affiliated with Kolmar Laboratories, Inc., Milwaukee, Wis., for the purpose of manufacturing and distributing private label cosmetics in Canada.

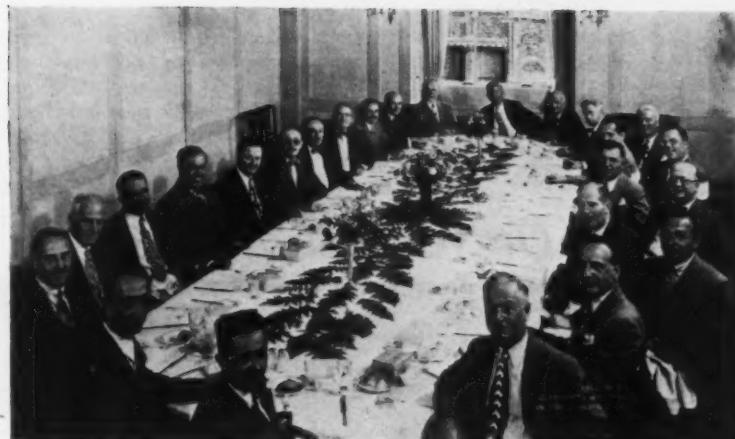
Kolmar Cosmetics in Canada will be manufactured under the same processes and formulae as Kolmar products in the United States.

Kolmar Laboratories has three plants in Milwaukee, others in Port Jarvis and Ellenville, N. Y., and Newark, N. J.

**Container Board Order**

Under War Production Board Order M-290 anyone who wants to buy more than 2½ tons per quarter must have written authorization from WPB. No deliveries may be made on lots of more than 50 pounds on uncertified orders.

Two kinds of authorizations may be had, "basic" and "incentive." Quantity in the former case depends



A reception and dinner was held recently at the New York Athletic Club in celebration of the 25th anniversary of the marketing of Pacquins Hand Cream. Shown above are Pacquin executives, their advertising counsel, and major suppliers, who attended the dinner.

largely upon fourth quarter, 1943, use. "Incentive" permits are for unlimited quantities.

Producers may not fill incentive order until at least 95 per cent of production has gone into basic orders. This does not apply to corrugated or solid fibre sheets.

Buyers of less than 2½ tons from

all sources in a quarter do not need written authorization, however, they must accompany orders with a certificate stating that their orders for the quarter do not exceed 2½ tons.

All communications should be addressed to: War Production Board, Paperboard Division, Washington 25, D. C.

## EXCLUSIVE WITH HOPKINS

### FACTOLAC

For Perfect Emulsions of Fixed and Volatile Oils  
Assures complete, homogeneous mixtures without trituration or special apparatus. Produces PERMANENT, creamy-smooth emulsions. Saves money, time and trouble  
... Write for formulas.

**GUMS** Whole or Milled to any degree of fineness  
PROFESSIONAL GRADES  
Gum Arabic Gum Tragacanth  
Gum Karaya  
We handle only the best professionally remilled, pharmaceutical grades. If you require purity, solubility and viscosity, ask us for samples and quotations.



"Quality is remembered  
long after price is forgotten"

### HOPKINS' FIJIOLINE

For Products Requiring a Reliable Mucilaginous Base  
A natural vegetable compound, semi-liquid, mucilaginous, almost entirely odorless. Mixes readily with oils and water. Ideal substitute for Quince Seed, Gum Tragacanth, Irish Moss, and Flaxseed bases.

### HOPKINS' NEUTRAL POWDERED WHITE SOAP

Extensively copied, never duplicated. Combines extreme whiteness with wholly neutral taste, low moisture content, very low residue of alcohol, water and sodium carbonate, resistance to varying temperatures, good meshing quality and non-hardening, non-rancid properties.

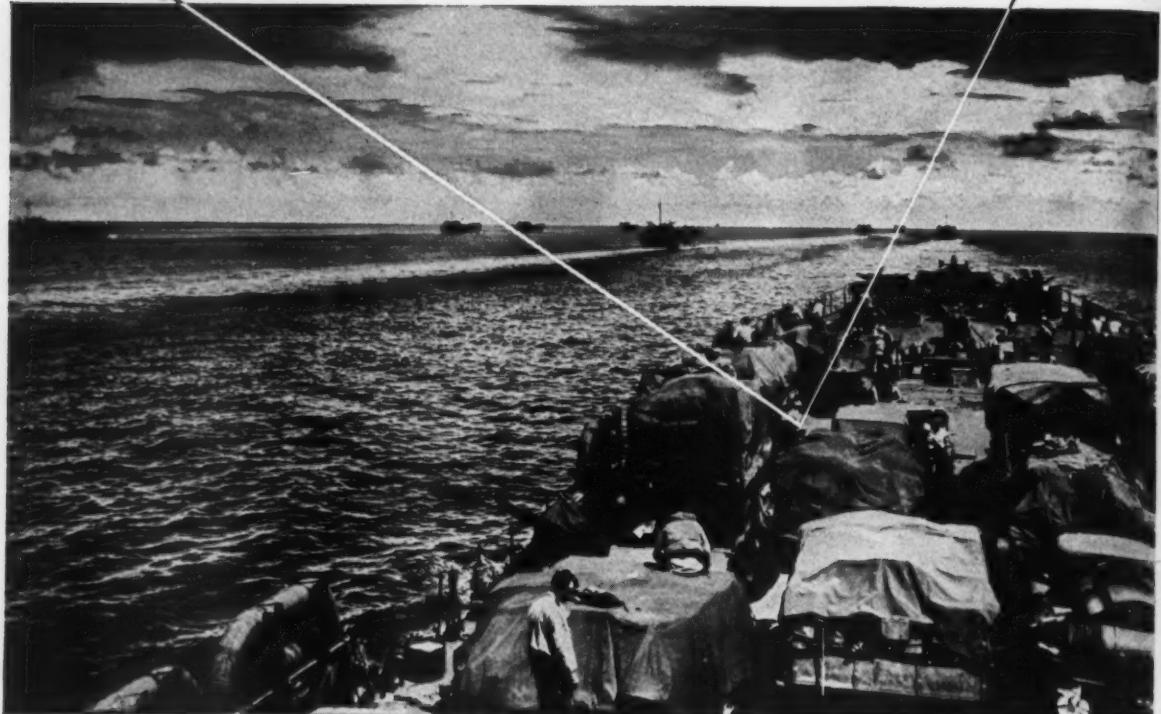
## BASIC INGREDIENTS OF TOP QUALITY

FOR TOILETRIES • COSMETICS • PROPRIETARIES

Full information, samples and quotations on request.  
Please indicate uses intended so that we may offer our best suggestions.

**J. L. HOPKINS & CO. • 220 BROADWAY, NEW YORK 7, N. Y.**

*On their Way again to Win again!*



## Are You?

Today the veterans of our European victories are sailing to final triumph in the Pacific! Meanwhile patriotic American industrial leaders are following a full-speed-ahead program to hasten peace through the Payroll Savings Plan!

From coast to coast, veteran Bond salesmen—and women—who put over the Mighty 7th, are once more mustered into service for plantwide selective re-

solicitation campaigns. These special efforts to keep employee Bond buying at a maximum are directed toward two major objectives:

**A** To hold every new 7th War Loan subscriber on the Payroll Savings Plan books—maintaining and, wherever possible, increasing present Bond allotments.

**B** To convince all regular sub-

scribers who recently stepped up their Bond buying, of the many advantages of continuing on this foresighted, extra-Bonds-for-the-future basis.

Back up our fighting men who have won one war—and will win another. Use selective resolicitation to make your Payroll Savings Plan more effective—put a tighter rein on inflationary tendencies—build peacetime prosperity.

### ROURE-DUPONT, Inc.

366 MADISON AVE. NEW YORK 17, N. Y.

SOLE AGENTS FOR ROURE-BERTRAND FILS AND JUSTIN DUPONT  
GRASSE (A. M.) FRANCE • ARGENTEUIL (S. & O.) FRANCE

\* This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and War Advertising Council \*

### Court Limits Use of "Hollywood" Label

The Federal Circuit Court of Appeals of the Ninth Circuit has handed down a decision in the case of Howe & Co., Seattle, Wash., that the name "Hollywood" may only be used by a manufacturer located in Hollywood.

Hollywood was defined as including the entire city of Los Angeles and adjacent municipalities.

### America Gets Lots of Suds in War-Time

In the first six months of 1945 ending June 30, sixty-eight manufacturers delivered to the American people 1,561,547,000 pounds of soaps other than liquid, and 2,214,000 gallons of liquid soaps, according to an announcement by Roscoe C. Edlund, manager of American Soap and Glycerine Producers.

Second quarter deliveries were slightly less than in the first quarter. Sales in dollars amounted to \$110,148,000 during the first quarter, and \$102,324,000 during the second.

According to Mr. Edlund, the volume produced would undoubtedly

have been larger were it not for restrictions which the Government felt compelled to place on fats, oils, rosin, phosphates, and other soap-making materials.

### Griffith Laboratories in New Quarters

The Griffith Laboratories, Ltd., has moved into new quarters, with an increased plant capacity and new laboratories. The new address is 109-117 George St., Toronto 2, Ontario.

### Reusable Shipping Containers Charged Against Quotas

Limitation Order L-317 of WPB, specifies that service cartons are regarded as re-shippers and must be charged against quotas.

### Philippines Coconut Oil Situation Investigated

Because of conflicting reports on coconut oil stocks and processing machinery in the Philippines, a group of five experts is being sent by the Foreign Economic Administration to study the situation at first hand.

### New Companies Formed by Dr. Marvin R. Thompson

Dr. Marvin R. Thompson, who resigned recently from the presidency of William R. Warner & Co., New York, N. Y., has started the formation of three new companies. These new companies, which will be located in Stamford, Conn., are the Marvin R. Thompson Co., Paul Thompson Associates, and M.R.T., Inc. The first organization will manufacture and distribute M.R.T. brand through ethical promotion, the second will promote the P.T.A. brand through consumer promotion, and the third will develop cosmetic research.

### Chicago Perfumers Swing Party

The Chicago Perfumery, Soap & Extract Association enjoyed a festive Swing Party and golf tournament at the Olympia Fields Country Club on July 24.

A cafeteria luncheon was offered at noon, followed by golf or swimming, sun bathing, cards, hiking, or just relaxing. Dancing, which began at 7.30, was preceded by cocktails.

## PLYMOUTH CRYSTAL "E" WHITE OIL

This oil has been the standard for many of America's very oldest cream manufacturers since their origin. It is water-white and crystal-pure . . . odorless and tasteless . . . of U. S. P. Acid Test and free of fluorescence . . . especially refined for the cosmetic industry and as pure as a mineral oil can be made. Because of its extra lightness you should specify it for the soft, light, fluffy creams demanded today.

Other mineral oils of heavier body if desired.

### A Complete LINE OF COSMETIC RAW MATERIALS

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and PLYMOUTH ORGANIC LABORATORIES, Inc.

# Selected Book List

**COMMERCIAL METHODS OF ANALYSIS.** By Foster Dee Snell & Frank M. Biffen. Just published. This valuable book covers practical analysis of typical products and gives procedures and calculations for hundreds of determinations—plus many pointers on general approach to analysis of unknown samples. Special emphasis is laid on time-saving methods in line with economic standards of the efficient commercial laboratory. Of constant use as quick reference to experienced chemists—inaluable to new chemists. 753 pages. 152 illustrations . . . \$6.00 postpaid.

**THE PREPARATION OF PERFUMES & COSMETICS.** By J. P. Durvelle. Translated from 4th French edition by Ernest J. Parry. Partial contents: Natural Raw Materials Used in Perfumery; Synthetic Perfumes; Manufacture of Perfumed Products; Preparation of Aromatic Waters, Extracts, Infusions & Tinctures; Compound Extracts known as Bouquets; Toilet Waters; Cosmetics; Softening Cosmetics; Depilatories; Incense, Fumigators, Etc.; Toilet Soap & Various Products; Specialties; Fruit Ethers . . . 427 pages . . . \$10.00 postpaid.

**DRUG & SPECIALTY FORMULAS.** By Emil J. Belanger. Tested, modern, practical formulas for human and veterinary remedies; cosmetics; food products; beverages; household, commercial & miscellaneous specialties. A digest of the new Federal Food, Drug & Cosmetic Act; suggestions for labeling drugs included. Little scientific knowledge or equipment needed for most of formulas . . . \$6.00 postpaid.

**THE LAW OF FOODS, DRUGS & COSMETICS.** By Harry A. Toulmin, Jr., J.D., Litt. D., LLD. With introduction by Hon. Paul V. McNutt, former Federal Security Administrator. All manufacturers need a copy of this book. A practical working manual. Contains official government regulations, FDA trade correspondence rulings, official forms and charts. Gives thorough analysis of the decisions relating to: False and Misleading Advertising, Unfair Competition and Misbranding. Informative Labeling. One large volume, 1460 pages . . . \$17.50 postpaid (will be kept up-to-date with pocket supplements for modest additional charge).

**HAIR-DYES & HAIR-DYEING.** By H. Stanley Redgrove & J. Baru-Wooliss. Completely revised edition of this standard work. The most complete treatise on subject yet written in any language . . . \$5.00 postpaid.

**PRACTICAL EMULSIONS.** By H. Bennett. Gives proper understanding of the technique and formulation that is necessary to produce a good emulsion. Covers all types of emulsions . . . \$5.00 postpaid.

**THE CHEMISTRY & MANUFACTURE OF COSMETICS.** By Maison G. de Navarre, Ph.C., B.S., consulting Chemist to the Drug and Cosmetic Industries, Member of the Faculty of Wayne University. A new kind of cosmetic book in which an expert gives you tested formulas and practical suggestions for making all up-to-date cosmetics — based on complete fundamental knowledge. Gives the basic properties, including standards and specifications, for all raw materials. Describes the proper equipment for every purpose and operation, showing you every step in its operation and use. Tells you how to comply with governmental regulations at every point. Includes a wealth of material found in no other book . . . Illustrated . . . 745 pages . . . \$8.00 postpaid.

**AMERICAN SOAP MAKER'S GUIDE.** By P. B. Meerbott & I. V. Stanley Stanislaus. Up-to-minute treatise on art and science of manufacture of soap, candles and allied toilet preparations. Third, completely revised, edition of this exhaustive book—covers all new developments. 700 pages. 105 illustrations . . . \$7.50 postpaid.

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## BIMS of New York

### Golf Meet

Neither high humidity, nor high temperatures, nor high scores due to recent rains, prevented the BIMS from having a glorious time at Sleepy Hollow Country Club, on July 26. Fun was still being had at midnight.

Martin F. Schultes, chairman, awarded 26 prize-winners a nice assortment of Victory Bonds and Stamps. The winners were: Grand Prize—Fred C. Kaiser, R. M. Stevenson, Harry W. Heister, George Uhe, Herman E. Reinhardt, Jr., Gene Kiernan, John E. Gabrielsen, Jack Mohr, William Lambert, Walter J. Jamieson, James A. Leyden, O. Dexter Neal, Frank Mahr, William Gunther, Frank L. Kiernan, Daniel H. Sterling, Ray F. Ougheltree, G. W. Sands, Edward A. Bush, John Ewald, Carl Claus, Frank N. Landlois, Frank C. Cleary, Walter J. Wasmer, Fred W. Webster, and Sewell H. Corkran.

### Public Register of Patents Available

The U. S. Patent Office has established a Public Register of Patents

available for licensing. Many owners of unexpired patents wish to grant licenses under these patents to prospective manufacturers on reasonable terms. In order to assist such owners in making publicly known their intention the Public Register of Patents has been established. The entry of the patents will be at Government expense.

### American Institute of Chemists Elects New Councilors

The American Institute of Chemists, New York, N. Y., by mail ballot, has elected the following new councilors for three year terms: Dr. Norman A. Shepard, Dr. W. D. Turner and Dr. James R. Withrow.

The retiring councilors are: Dr. Donald H. Andrews, Dr. Foster D. Snell and Dr. W. D. Turner, who was re-elected.

### Mary Chess Sales Dept. Moves

The sales department of Mary Chess, Inc., was transferred on July 16 to a new location at 654 Madison Ave., New York, N. Y.



Marian Brokaw, Marcus Salzman, Jr., Hildreth Lange and Elizabeth Barker enjoying the festivities at the New York launching of "Sweet 'n Lovely" at the Sherry Netherland

### Remus Acquires Additional Line

Edward Remus & Co., New York, N. Y., is now representing the Sociedade Portuguesa Productors Tartaricos Remus, Ltd., as sales agent for the United States.

### Associated Distributors Changes Name

The corporate name of Associated Distributors, Inc., Chicago, Ill., has been changed to Associated Products, Inc.

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He is trampling out the vintage, where his grapes of wrath are stored:  
He hath loosed the fateful LIGHTNING of His terrible swift sword.  
His truth is marching on."

Battle Hymn of the Republic  
Julia Ward Howe

For mere vengeance I would do nothing. This Nation is too great to look for mere revenge. But for the Security of the Future, I would do everything.

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Photograph courtesy American Air Corps, U. S. Army

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### Associated Products Buys Nelore Preparation

Associated Products, Inc., Chicago, Ill., has announced the purchase of Nelore Preparation, psoriasis remedy. The company is being transferred to the 5-Day Laboratories division of Associated Products, Inc.

### Boston BIMS Tournament Well Attended

Pete Niles, chairman of the BIMS of Boston, reports the most gala and best attended tournament since the club's inception. It was held at Woodland Golf Club on July 19, and the following prizes were awarded: Grand prize, R. P. Robinson; low gross, Sewell Corkran; and low net, M. E. Nourse.

### Sterling Drug's Liberalized Pension

Approximately 750 employees of Sterling Drug, Inc., New York, N. Y., in the United States will benefit under a modification of the company's pension plan which gives them full credit for their back service with the

companies acquired by Sterling over the years.

In addition, life insurance will be continued on all employees retired on pension. The amount of this insurance, cost of which will be defrayed by the company, will be one-half of the retirement pension, with minimum insurance coverage of \$750 and a maximum coverage of \$5,250.

### Cellophane Plant Expansion Proposed

E. I. duPont de Nemours & Co., Wilmington, Del., has applied to the War Production Board for a major expansion at the cellophane plant in Clinton, Iowa. If approved, the expansion will take about one year.

### Andrew Jergens Buys Plant Site

The Andrew Jergens Co., Cincinnati, Ohio, has purchased 67 acres of land on which a new plant will be erected when building is resumed. The site is located on Reading Road, in that city.

### "Uncle's Club" Holds Golf Tournament

The "Uncle's Club," a group of 40 men in the Drug and Chemical Industry in Chicago, held its first golf tournament and play-day for members and guests on May 29, at Rolling Green Country Club, Arlington Heights, Ill. Sixty-one persons attended.

The arrangements were in the hands of a committee headed by Stanley Schuster, assisted by O. Nelson and William Schutte. Joseph A. Gauer is president of the "Uncle's Club."

### Lead Tube Order Rewritten

Through N-115, manufacturers of lead tubes are permitted to use 20 per cent of all lead used during 1944 during the third quarter and any subsequent quarter.

In delivery, preference is shown the Army, Navy, Shipping Administration, Maritime Commission, Veterans Administration, Red Cross, Panama Canal Office of Scientific Research and medical products.

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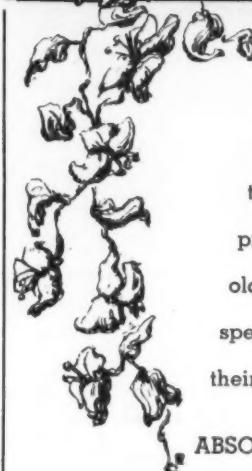
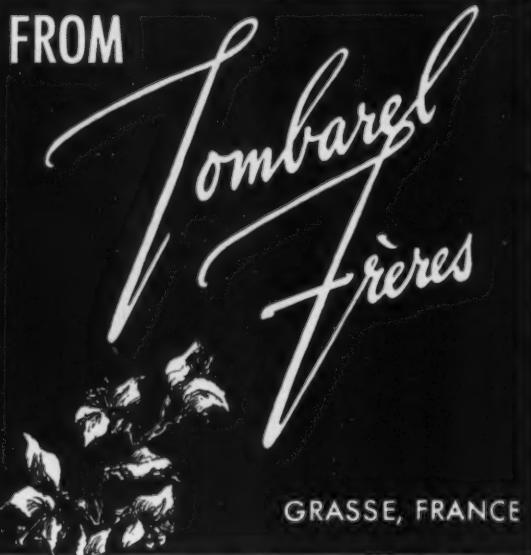
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#### Aluminum Closures Permitted

Direction No. 2, to WPB Order No. L 103-b has been revoked. Aluminum may now be used for closures for any purpose.

#### Alcohol Bonus Declared

The WPB has granted an alcohol bonus to perfume and cosmetics manufacturers for August. Allocations will probably be slightly less than double.

#### Red Oil Under Restrictions

War Food Order No. 53 has been amended so that for users requiring more than 450 pounds per month, authorization is necessary, stating end use. Application must be on Form FDA 478.

#### Cuban Sugar Production Shows Decline This Season

It is expected that Cuban sugar production for the season now approaching an end will amount to only about 4,000,000 short tons. This

represents a drop of about 750,000 tons under the 1944 output.

A severe drought beginning last November has affected production unfavorably. The 1944 crop was the third largest on record.

#### Bayer-Watkins Sales Meetings Cancelled

All four divisional sales meetings of the Bayer-Watkins Division, Sterling Drug, Inc., New York, N. Y., scheduled to be held during August in New York, Chicago, New Orleans and San Francisco have been cancelled because of transportation difficulties.

#### Maximum Peppermint Oil Pricing

Peppermint oil, through Office of Price Administration Order RMPR 165, has been placed under maximum prices for custom distillation, in the states of Oregon and Washington, whereby not more than 45 cents per pound may be charged. Where the yield is less than 22½ pounds a minimum charge of \$10.00 per tank is permissible.

#### Truman Requests Funds for Business Survey

President Harry S. Truman has requested an appropriation of \$18,333,000 from the Government to conduct a sample survey of business, both wholesale and retail. President Truman stated, "It is of vital and immediate importance that the nation be equipped with the basic information which would be secured by the proposals to which I refer."

#### Alabama Bill Aims at Cosmetics Control

A bill has been introduced into the Alabama Senate to control the manufacture, sale and advertising of cosmetics. It is similar to the Federal Food, Drug and Cosmetic Act in scope.

#### Waval-Thermal in New Plant

Waval-Thermal has announced that it is located in its new plant, 5610 Hollywood Blvd., Hollywood 28, Calif.

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### Arnold Strom Here From Sweden

Arnold Strom, manager of A. B. Eresco, Stockholm, Sweden, is in the U. S. studying new products and processes developed in this country during the war. He plans on leaving early next month.

### Packaging Institute Plans September Meeting

A local meeting of the Packaging Division of the American Management Association is planned for September 18 and 19, at the Hotel New Yorker, New York, N. Y.

In conformation with the policies of the War Committee on Conventions, this will be a local meeting, with attendance restricted to those living or working in the New York area. As a consequence members living more than fifty miles from New York are requested not to attend the meeting.

The Association is planning to give the fullest and quickest reports to all those who would normally attend but cannot now do so to keep them advised on developments.

We need your help! Owing to the paper shortage, we have not been able to print as many copies of THE AMERICAN PERFUMER as we would have liked. Consequently, we are unable to fill the demand for back issues—dating back to 1941. Do you have any copies that have served their purpose? If so, you will be doing us, and our readers, particularly those in foreign countries, a very real service by sending them in. We will be glad to defray charges—express or postage.

## Obituary

### J. Milton Lutz

J. Milton Lutz, vice-president of the Mione Soap Manufacturing Co., Collingdale, Pa., died recently at his home in Upper Darby, Pa. He was 89 years of age. Known as the "father of the Upper Darby school system," he had served on the school board for 55 years.

### John D. Larkin

John D. Larkin, former president and general manager of the Larkin Co., Buffalo, N. Y., died recently after a long illness. He was the son of the founder of the company.

### Charles B. Bergin

Charles B. Bergin died recently at the age of 69. He was retired secretary of the Los Angeles Soap Co., Los Angeles, Calif.

### Mrs. R. F. Morenus

Mrs. R. F. Morenus, founder of the Arabian Toilet Goods Co. which name was later changed to the Arabian Cosmetic Co., Inc., Chicago, Ill., died at her home recently. The business was founded by Mrs. Morenus before her marriage when her name was Miss Elizabeth Rickles. The business will be continued as usual.

### Abraham Nassour

Abraham Nassour, president of the Castilian Products Corp., Los Angeles, Calif., died at his home re-

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cently at the age of 75 years. He is survived by his widow, three sons, six daughters and nine grandchildren.

#### **Captain Arthur Elwood Huff**

Captain Arthur Elwood Huff was reported killed in the Pacific while being transported aboard a Jap vessel.

Before the war Captain Huff was a research scientist in the laboratories of the Monsanto Organic Chemicals Division, St. Louis, Mo.

He is survived by his wife, daughter, mother, brother and sister.

#### **B. I. Bloom**

B. I. Bloom, who has been with Coty, Inc., New York, N. Y., for almost twenty years, died recently. His function was the rather unusual one of acting as host at wholesale and chain drug store conventions. He was also host at the Coty Pavilion at the New York World's Fair.

#### **William A. R. Welcke**

William A. R. Welcke, 75-year-old first vice-president of Fritzsche

Brothers, Inc., New York, N. Y., died at his home on Friday morning, July 13. Had he survived less than two months, until September 7, he would have completed 60 years of service with his firm.

Mr. Welcke was born in New York on December 21, 1870. He was only 15 when he came to work for Fritzsche Brothers in 1885. At that time the company was relatively small, but it was growing and in the next half dozen decades Mr. Welcke saw the firm expand and grow to its present size.

As his own position improved and his natural bent for management and finance developed, he took an increasingly active part in its growth. His efforts were crowned finally with his elevation to the joint position of vice-president and treasurer which he held at the time of his death. He was also a member of the Board of Directors.

Perhaps the highest attainment and certainly his most cherished personal honor was his membership in the Knights of Malta which was conferred upon him last year. This is

one of the highest distinctions attainable by a Catholic layman in this country and is conferred upon those who are outstanding in charitable work, whose time, effort and money have been donated freely and generously to the unfortunate. Mr. Welcke was not a man to boast of his good deeds, consequently few knew the extent of his benefactions until after he had been knighted. His quiet, modest and unassuming exterior almost belied the youthful, fun-loving spirit that his most intimate friends knew he possessed.

A Solemn High Requiem Mass attended by Mr. Welcke's relatives and friends, including the executives of Fritzsche Brothers, Inc., and many of the employees and their wives, was held July 16 at St. Catherine's Church in Pelham, N. Y. In addition to his membership in the Knights of Malta, Mr. Welcke was a member of the Knights of Columbus and a Past Grand Master of the Almirante Council of that organization. He was also a member of the New York Athletic Club. A sister, Adelaide, and a brother, Celestin, survive him.



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# MARKET REPORT

## Glycerin Supply Becomes Tighter

SHARP advances in Ceylon citronella and lemongrass featured the essential oil market over the past month while among the chemicals Brazilian menthol declined to a new low level. With explosive and ordnance demands absorbing approximately fifty per cent of the current glycerin production, the supply available for the manufacture of civilian goods is becoming increasingly tighter. Stocks declined 3,985,000 pounds (absolute basis) in May with a total on hand May 31 amounting to 67,713,000 pounds. In discussions in Washington it was recently brought out, however, that as long as glycerin stocks did not fall below 50,000,000 pounds, the supply position of the market could not be considered serious.

### LEMONGRASS PRICES RISE

The sharp advance in lemongrass was reflected in a decidedly firmer situation in citral and the ionones. Shipping prices on lemongrass in India rose from \$2.07 per pound to \$2.40 to \$2.50. The United States imported greater quantities of lemongrass from India last year than in any other previous twelve-month period according to reports. It is the steadily rising demand from this country that is causing the continued upward movement in shipping prices.

Following a sharp rise in prices, the spot market in citronella oil turned largely nominal as major dealers withdrew all offerings pending some clarification as to where the oil will finally be placed in the Tariff Act. The Customs authorities explain that they are awaiting final decision by the U. S. Customs Court following a recent case involving citronella. Meanwhile some local houses explained that they had been assessed a duty of 40 cents per pound plus 30 per cent ad valorem on recent par-

cel's arriving here which had been classified as perfume compounds because the oil after examination was found to contain a certain percentage of petroleum distillate. Citronella oil as such has in the past been duty free. Local houses maintain that the oil always contained a certain amount of foreign matter in it.

### PEPPERMINT OIL DISTILLATION

Distillation of new crop of peppermint oil has been started in the country and barring unforeseen developments, the crop is expected to yield a fair amount of oil. High prices have served to discourage any unusual activity in the article. It is understood that some Russian oil has been offered here for October-December shipment at prices from \$2 to \$2.50 per pound below the level at which domestic oil is being quoted. Industrial users of peppermint oil will be permitted to acquire 75 per cent of their 1945-46 quotas between July 24 and September 30 as a result of action taken in Amendment No. 6 to WFO 81 by the Department of Agriculture. The order contains among other provisions an inventory limitation clause prohibiting any user from acquiring a quantity which together with his stock on hand at the beginning of a year would provide an inventory of oil exceeding his annual quota for any twelve-month period ending September 30. Last year an amendment similar to the one just issued allowed manufacturers to acquire 50 per cent of the 1944-45 quotas before October 1, 1944. Quotas remain unchanged at 80 per cent for chewing gum manufacturers, confectionery and miscellaneous items; 85 per cent for manufacturers of dentifrices and 110 per cent for pharmaceutical manufacturers, all based on 1941 usage.

Further small lots of lavender oil

arrived here from France over the past month but the flow of French floral oils has by no means reached the proportions that had been expected following the ending of the conflict in Europe. Reports from oil houses in the local market indicate that it will require a great many large imports before demands here will be satisfied.

### MENTHOL PRICES ABOVE NORMAL

Although the Brazilian menthol market has suffered a further setback with prices reaching a new low level on the downward trend, trade factors explain that the latest quotation for ton lots or more of \$7.00 per pound is still several dollars above normal prices prevailing on Chinese menthol prior to the outbreak of the war. There are some in the trade who are looking for a \$5 market by early Fall. Additional parcels are reported afloat and there is reason to believe that the downward trend will continue.

The first whaling vessel to brave the Antarctic since the war halted operations in 1940 is expected to discharge a portion of its total cargo of 145,000 barrels in the United States. The ship, the 14,000-ton Norwegian whaler Sir James Clark Ross, has been at sea since last October when she set out on a secret expedition. The remainder of the cargo is to go to Europe.

### BENZOATE SITUATION TIGHT

Among the chemicals, caustic soda, sodium benzoate, and saccharin were all scarce and active. In view of the extremely tight position in the basic material, trade factors fear that the real pinch in benzoate will come within the next thirty days, at which time the requirements of the flavoring and food trades will have reached a seasonal high level.

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Almond, Bit, per lb.	3.50@ 4.00	Citronella, Ceylon	1.80	Nom'l	Orange, bitter	3.90@ 3.95
F. P. A.	5.00@ 5.50	Java	3.25	Nom'l	Brazilian	1.50@ 1.65
Sweet True	1.35@ 1.60	Cloves, Zanzibar	1.80@ 1.85		Calif., exp.	2.00@
Apricot Kernel	.50 Nom'l	Coriander	30.00@ 32.00		Orris Root, abs. (oz.)	135.00@
Amber, rectified	2.25 Nom'l	Imitation	12.00@ 14.00		Artificial	36.00@ 40.00
Angelica Root	125.00@ 150.00	Croton	3.75@ 4.25		Pennyroyal, Amer.	3.50@ 3.80
Anise, U. S. P.	4.00 Nom'l	Cumin	9.00@ 11.00		European	4.10 Nom'l
Imitation	1.75@ 2.10	Dillseed	8.00 Nom'l		Peppermint, natural	7.00@ 7.25
Aspic (spike) Span.	3.00@ 3.75	Erigeron	2.25@ 5.00		Redistilled	7.50@ 7.75
Avocado	1.05@ 1.25	Eucalyptus	1.12@ 1.19		Petitgrain	2.25@ 2.50
Bay	1.50@ 1.75	Fennel, Sweet	4.00 Nom'l		Pimiento	7.50@ 8.00
Bergamot	9.00@ 10.00	Geranium, Rose, Algerian	15.00 Nom'l		Pinus Sylvesteris	4.25@ 5.00
Artificial	4.00@ 9.25	Bourbon	16.00@ 17.50		Pumillotis	4.25@ 4.75
Birch, sweet	2.75@ 5.00	Turkish	5.00@ 5.80		Rose, Bulgaria (oz.)	30.00@ 40.00
Birchtar, crude	2.25 Nom'l	Ginger	18.00@ 20.00		Synthetic, lb.	45.00@ 55.00
Birchtar, rectified	4.25 Nom'l	Guaiac (Wood)	4.00@ 4.80		Rosemary, Spanish	1.45@ 1.60
Bois de Rose	5.75 Nom'l	Hemlock	2.65@ 3.34		Sage	3.00@ 3.50
Cade, U. S. P.	.90@ 1.20	Substitute	.55@ .60		Sage, Clary	25.00@ 30.00
Cajeput	2.35@ 3.00	Juniper Berries	12.50@ 16.00		Sandalwood, N. F.	7.00@ 7.25
Calamus	22.50@ 35.00	Juniper Wood, imitation	1.00@ 1.25		Sassafras, natural	2.00@ 2.15
Camphor "white," dom.	.35 Nom'l	Laurel	5.00 Nom'l		Artificial	.90@ 1.10
Cananga, native	12.75@ 13.00	Lavandin	8.25 Nom'l		Snake root	12.00 Nom'l
Rectified	15.00@ 16.25	Lavender, French	17.00@ 17.50		Spearmint	4.00 Nom'l
Caraway	20.00@ 22.00	Lemon, Calif.	3.25 Nom'l		Thyme, red	2.75@ 3.00
Cardamom	21.00@ 25.00	Lemongrass	2.85@ 3.00		White	3.05@ 3.80
Cassia, rectified, U. S. P.	12.00 Nom'l	Limes, distilled	7.50@ 8.00		Valarian	40.00 Nom'l
Imitation	3.75@	Expressed	13.50@ 15.00		Vetiver, Java	50.00 Nom'l
Cedar leaf	1.20@ 1.35	Linaloe	4.00@ 4.15		Bourbon	30.00@ 32.00
U. S. P.	2.65@ 3.34	Lovage	95.00 Nom'l		Wintergreen	4.85@ 8.50
Cedar wood	.95@ 1.00	Marjoram	7.25@ 7.50		Wormseed	5.25 Nom'l
Celery	17.00@ 20.00	Neroli, Bigarde P.	300.00@375.00		Ylang Ylang, Manila	38.00 Nom'l
Chamomile	.150.00 Nom'l	Petales, extra	265.00@300.00		Bourbon	13.00@ 20.00
Cinnamon bark oil	32.50@ 35.00	Olibanum	5.00@ 5.75			
		Opopanax	30.00@ 38.00			

(Continued on page 95)

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## SOAP BUYERS!

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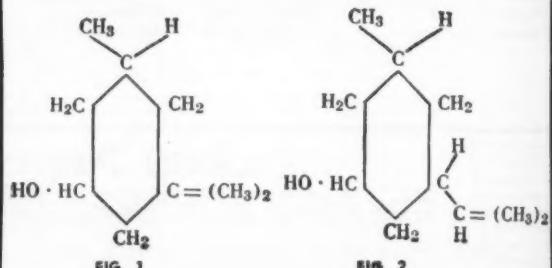
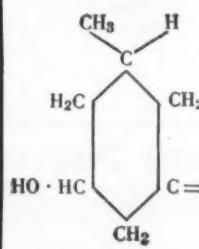
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(Continued from page 93)

TERPENELESS OILS		Benzyl Alcohol	1.85	Nom'l	Hydroxycitronellal	8.50	Nom'l
Bergamot	25.00	Nom'l	1.10	Nom'l	Indol, C. P.	23.00@	26.50
Grapefruit	65.00@		2.15	Nom'l	Iso-borneol	1.10	Nom'l
Lavender	28.00	Nom'l	5.15	Nom'l	Iso-butyl Acetate	1.50@	2.00
Lemon	45.00	Nom'l	2.50@	3.75	Iso-butyl Benzoate	1.50@	2.60
Lime, ex.	80.00@100.00		10.25	Nom'l	Iso-butyl Salicylate	2.70@	3.00
Distilled	60.00@ 67.00		2.25@	3.40	Iso-eugenol	4.00	Nom'l
Orange sweet	65.00@112.00		1.80	Nom'l	Iso-safrol	3.00	Nom'l
Peppermint	13.35@ 14.00		2.25	Nom'l	Linalool	6.50	Nom'l
Petitgrain	3.50@ 3.75		6.25@		Linalyl Acetate 90%	8.75@	9.00
Peppermint	5.00@ 6.00		18%@	.19	Linalyl Anthranilate	15.00@	
DERIVATIVES AND CHEMICALS		Cinnamic Acid	3.75@	4.50	Linalyl Benzoate	10.50@	
Acetaldehyde 50%	1.90@ 2.75	Cinnamic Alcohol	3.65@	3.85	Linalyl Formate	9.25@	12.00
Acetophenone	1.70@ 1.80	Cinnamic Aldehyde	2.65@	3.90	Menthol, Brazilian	7.00@	7.50
Alcohol C 8	7.50 Nom'l	Cinnamyl Acetate	10.50@	12.00	Methyl Acetophenone	1.80	Nom'l
C 9	14.00 Nom'l	Cinnamyl Butyrate	12.00@	14.00	Methyl Anthranilate	2.25@	2.40
C 10	7.75@ 12.00	Cinnamyl Formate	10.00@	13.00	Methyl Benzoate	.60@	1.00
C 11	11.50 Nom'l	Citral, C. P.	5.85@	6.00	Methyl Cellulose, f.o.b. ship-		
C 12	7.20@ 8.50	Citronellal	6.50@	7.00	ping point	.60	Nom'l
Aldehyde C 8	22.50@ 28.00	Citronellyl Acetate	8.60@	9.20	Methyl Cinnamate	3.00	Nom'l
C 9	32.00 Nom'l	Coumarin	3.00@	3.50	Methyl Eugenol	3.50@	6.75
C 10	22.00@ 29.00	Cuminic Aldehyde	8.00@	11.25	Methyl Heptenone	3.50	Nom'l
C 11	22.00 Nom'l	Diethylphthalate	.24	Nom'l	Methyl Heptine Carbonate	45.00@	60.00
C 12	25.00@ 30.00	Dimethyl Anthranilate	4.55@	5.00	Methyl Iso-eugenol	5.85@	10.00
C 14 (so called)	9.25@ 9.75	Ethyl Acetate	.25@	.35	Methyl Octine Carbonate	24.00@	30.00
C 16 (so called)	7.65@ 8.25	Ethyl Anthranilate	5.50@	7.00	Methyl Paracresol	2.50	Nom'l
Amyl Acetate	.55@ .75	Ethyl Benzoate	.90@	1.15	Methyl Phenylacetate	3.75@	4.00
Amyl Butyrate	.90@ 1.10	Ethyl Butyrate	.75@	.90	Methyl Salicylate	.37@	.38
Amyl Cinnamate	4.50@ 5.80	Ethyl Cinnamate	3.50	Nom'l	Musk Ambrette	4.25@	4.50
Amyl Cinnamyl Aldehyde	2.75@ 5.00	Ethyl Formate	.75@	.95	Ketone	4.35@	4.80
Amyl Formate	1.00@ 1.50	Ethyl Propionate	.80	Nom'l	Xylene	1.65@	2.50
Amyl Phenyl Acetate	3.75@ 4.00	Ethyl Salicylate	.90@	1.00	Neroline (ethyl ether)	2.00@	3.15
Amyl Salicylate	.80@ 1.00	Ethyl Vanillin	5.25@	6.00	Paracresol Acetate	2.55@	3.00
Amyl Valerate	2.10@ 2.75	Eucalyptol	3.00	Nom'l	Paracresol Methyl Ether	2.60@	2.85
Anethol	3.50 Nom'l	Eugenol	3.30@	3.50	Paracresol Phenyl-acetate	6.50@	8.50
Anisic Aldehyde	3.35@ 4.00	Geraniol, dom.	5.75@	6.00	Phenylacetalddehyde 50%	3.00	Nom'l
Benzophenone	1.15@ 1.30	Geranyl Acetate	4.00	Nom'l	100%	5.00	Nom'l
Benzyl Acetate	.75 Nom'l	Geranyl Butyrate	8.50	Nom'l	Phenylacetic Acid	3.00@	3.75
		Geranyl Formate	13.40	Nom'l	Phenylethyl Acetate	2.50	Nom'l
		Heliotropin, dom.	6.50	Nom'l	Phenylethyl Alcohol	2.80@	3.00
		Hydrotopic Aldehyde	15.00@	18.00			

(Continued on page 97)

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(Continued from page 95)

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Phenylethyl Butyrate	3.65@ 4.00
Phenylethyl Propionate	3.45@ 3.90
Phenyl Valerenate	16.00@ 17.50
Phenylpropyl Acetate	10.00 Nom'l
Santalyl Acetate	20.00@ 22.50
Scatol C. P. (oz.)	5.35@ 6.00
Styrolyl Acetate	2.50@ 3.00
Vanillin (clove oil) (guaiacol)	2.60 Nom'l 2.35 Nom'l
Lignin	2.35 Nom'l
Vetivert Acetate	25.00 Nom'l
Violet Ketone Alpha	18.00 Nom'l
Beta	15.00 Nom'l
Methyl	6.50 Nom'l
Yara Yara (methyl ester)	2.00@ 3.10

BEANS

Tonka Beans Surinam	.80@ .95
Angostura	1.75@ 2.00
Vanilla Beans	
Mexican, whole	11.00@
Mexican, cut	10.00@
Bourbon	9.50@ 10.50
Tahiti	4.00@

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Acetone	.07@ .07½
Almond meal	.25@ .35
Ambregris, ounce	12.00@ 16.00
Balsam, Copaiba	.85@ .95
Peru	1.25@ 1.35
Beeswax bleached, pure U. S. P.	.58 Nom'l
Yellow, refined	.53½ Nom'l
Bismuth, subnitrate	1.20@ 1.22
Borax, crystals, carlot ton	55.50@ 58.00
Boric Acid, U. S. P., cwt.	6.95@ 7.55

Calamine	.18@ .20
Calcium, phosphate	.08@ .08½
Phosphate, tri-basic	.09@ .10
Camphor, domestic	.69@ .84
Castoreum	13.00@ 17.00
Cetyl Alcohol	1.75@ 1.80
Chalk, precip.	.03½@ .06½
Cherry Laurel Water, jug, gal.	3.60@ 4.00
Citric Acid	.21 Nom'l
Civet, ounce	18.00@ 25.00
Clay, colloidal	.07@ .15
Cocoa, Butter, lump	.25½@ .27
Cyclohexanol (Hexalin)	.30@ .50
Fuller's Earth, ton	15.00@ 33.00
Glycerin, C. P., drums	.17½@ .17½
Gum Arabic, white	.42@ .45
Amber	.11@ .11½
Powdered, U.S.P.	.18@ .21
Gum Benzoin, Siam	5.00 Nom'l
Sumatra	1.40 Nom'l
Gum Galbanum	1.80@ 2.00
Gum Myrrh	.55 Nom'l
Henna, p.wd.	.30@ .35
Koolin	.05@ .07
Labdanum	3.25@ 5.00
Lanolin, hydrous	.30@ .34
Anhydrous	.31@ .35
Magnesium, carbonate	.09@ .10½
Stearate	.24@ .27
Musk, ounce	50.00 Nom'l
Olibanum, tears	.21@ .35
Siftings	.11½@ .13
Orange Flower Water, gal.	1.75@ 2.25
Orris Root, African, p.wd.	1.10@ 1.15
Paraffin	.06@ .09
Peroxide	1.10@ 1.75
Petrolatum, white	.06½@ .08½
Quince Seed	1.50@ 1.75
Rice Starch	.10 Nom'l
Rose Leaves, red	3.45@ 4.00
Rose Water, gal.	6.50@ 8.00

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Castor No. 1, tanks	.13@
Cocoonut, Manila Grade, c.i.f., tanks	.0835@
Corn, crude, Midwest, mill, tanks	.12½@
Corn Oil, distilled, drums	.16½@ .16½
Cotton, crude, Southeast, tanks	.12½@
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Lard	152½@
Lard Oil, common, No. 1 bbls.	.14@
Palm Niger, drums	.0865
Peanut, blchd., tanks	.1501@
Red Oil, distilled, tons	.12@
Stearic Acid	
Triple Pressed	.18½@ .18½
Double Pressed	.15½@ .16½
Tallow, acidless, barrels	.14½@
Tallow, N. Y. C., extra	.08½@
Whale oil, refined	.1232 Nom'l

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It would appear that about six copies were lost through enemy action.

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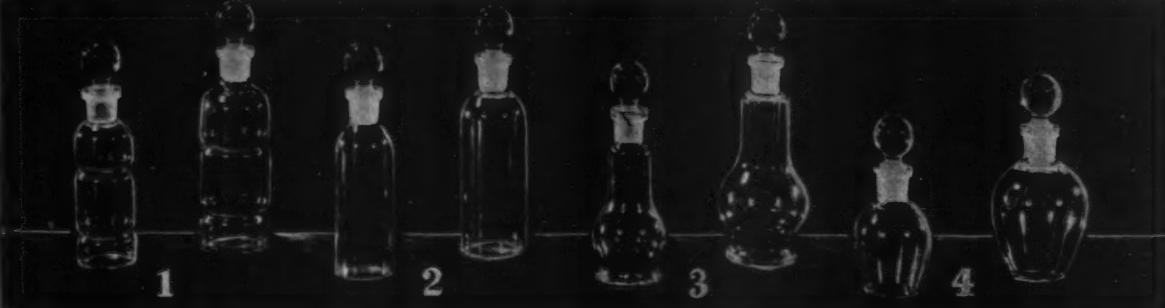
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# Survey of Recent Cosmetic Patents

*Registered Agent before the U. S. Patent Office discusses U. S. and foreign patents . . . Any inquiries relating to patents and trade marks will be met with prompt attention . . .*

by I. J. FELLNER, Ph.D.

**Fingernail Enamel Remover.** Canadian Industries Ltd., Montreal, Quebec, Canada. *Canadian 426,997, April 24, 1945.* A cream type finger nail enamel remover is compounded of the following ingredients:

Ethylacetate	40.0 parts b.w.
n-Butylacetate	40.0
Castor oil	4.0
Perfume	0.1
Ethylecellulose	2.8
Stearic acid	11.0
Concentrated ammonium-hydroxide	3.8

Stearic acid may be replaced by palmitic acid, and castor oil by olive oil and lanolin.

**Soap Antioxidant.** American Cyanamid Co., New York, N. Y. *U. S. 2,375,626, May 8, 1945.* Soap may be stabilizer against discoloration and rancidity by the presence therein of a biguanidine salt or a mono-phenyl biguanidine salt of a p-tertiary amyl-phenyl phosphoric acid.

**Preservation of Food Juices.** The Lee Foundation for Nutritional Research, Milwaukee, Wis. *U. S. 2,374,219, April 24, 1945.* In the food juice is dispersed an organic sterilizing agent which is simultaneously evaporated from the sterilized juice, whereupon the juice is dried.

**Wax Composition.** Atlas Powder Company, Wilmington, Del. *U. S. 2,374,931, May 1, 1945.* A solid wax composition contains a solid wax as major constituent, and a mixed dispersing agent for said wax comprising a lipophilic partial ester of a low molecular weight hydrophilic poly-

hydroxylic organic compound and a long chain fatty acid, and a highly hydrophilic hydroxy-polyoxyethylene ether (having at least 10 oxyethylene groups) of a lipophilic partial ester of a low molecular weight hydrophilic polyhydroxylic organic compound and a long chain fatty acid. The lipophilic partial ester comprises at least 20 per cent of the said mixed dispersing agent and the hydroxy-polyoxyethylene ether is present in a sufficient amount in association with the lipophilic partial ester to readily disperse the wax in a hot aqueous medium to form a stable homogeneous wax dispersion.

**Astringent Skin Cleansers.** Cirine Werke Boehme & Lorenz, Chemnitz, Germany. *Swiss 225,669, June 1, 1943.* The cleanser comprises alkali salts of sulfuric acid esters of mono-hydric aliphatic alcohols having 12 to 20 carbon atoms, a greasing substance, and vitamines. To this may be added a water soluble hexametaphosphate and a free phosphoric acid, e.g., metaphosphoric acid or hexametaphosphoric acid.

**Toothpaste.** K. N. Stenbom, Stockholm, Sweden. *Swedish 105,585, Sept. 9, 1942.* A toothpaste containing glycerin, sulfonated castor oil, a water soluble chlorate and chloramine.

**Cleansing Composition.** The Eumese Corporation, Chicago, Ill. *U. S. 2,374,213, April 24, 1945.* A solid detergent cake contains equal parts of a hydrochloride of the lauric acid ester of monoethanolamine and monolaurin.

**Detergent Composition.** American Cyanamid Co., New York, N. Y. *U. S. 2,373,863, April 17, 1945.* The detergent which is non-alkaline and of improved lathering properties is compounded of 20 to 90 parts of a water soluble, normally solid, mild acidifying agent, 5 to 70 parts of an N-alkyl sulfosuccinamate in which the alkyl radical contains 12 to 18 carbon atoms, and 0.4 to 1 per cent, based on the weight of the other ingredients, of a water soluble cellulose ether.

**Protective ointment against aldehydes.** I. G. Farbenindustrie, Frankfurt on Main. *Norwegian 65,315, Oct. 12, 1942.* An ointment basis contains urea, acetamide or stearylamine. An illustrative composition is: 10 per cent water, 50 per cent lanolin, 10 fl. paraffin, 20 per cent flavored vaselin and 10 per cent urea.

**Stabilization of Fatty Materials.** Industrial Patents Corp., Chicago, Ill. *U. S. 2,374,234, April 24, 1945.* A relatively non-volatile fatty material is steam deodorized in the presence of a small amount of gum guiac.

**Anhydrous Vaseline-like Products.** Schering A. G., Berlin, Germany. *German 740,313, Oct. 18, 1943.* Hydrocarbonous oils in mixture with condensation products of oxybenzyl alcohol, aminosulfonic acids and formaldehyde are worked into a consistent paste. For example, 1 part of the condensation product of isothymol with sulfanilic acid and formaldehyde is stirred into 10 to 12 parts of paraffine oil and stirring is continued until formation of a consistent mass.

# Production Control and the Analysis of Cosmetics

by MAISON G. DENAVARRE, Ph.C., B.S.

*Technical Editor of the American Perfumer & Essential Oil Review,  
Expert Consultant, Engineer Board, U. S. Army; Special Lecturer in  
Cosmetics, Wayne University, College of Pharmacy, Consulting Chemist*

## Eighteenth Installment

The seventeenth installment was published in the preceding issue. The concluding installment of the series appears in this issue.

### ACKNOWLEDGMENTS

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## CHAPTER IV (continued)

### Physical and Chemical Testing Gravimetric and Volumetric Methods

#### C-448—TRIETHANOLAMINE AND COBALT, REACTION FOR—GARELLI-TETTAMANZI

(*Merck Index*)

When 2 drops of 5 per cent cobalt chloride solution are added to an aqueous solution of triethanolamine made alkaline with a drop of ammonia, an intense purple-violet color is produced which becomes blue on warming. Triethanolamine can also be used to detect 1 part of cobalt in 15,000 parts of solution.

#### C-449—TRIETHANOLAMINE, TEST FOR—ZAPARANICK

(*Merck Index*)

Decompose oils, emulsions and similar substances by boiling with an excess of mineral acid. Cool, extract the fatty matter with ether, make the water layer strongly

alkaline with NaOH solution, and boil off the ammonia if present. A blue color obtained on the subsequent addition of cupric sulfate solution indicates triethanolamine.

#### C-450—TRIETHANOLAMINE, DETECTION AND DETERMINATION OF

(*H. R. Fleck, Analyst*. **60**, 77, 1935)

In the analysis of creams in which the fatty base is incorporated in water, the material is saponified, evaporated to dryness with lime, and the residue extracted with boiling absolute alcohol. The alcoholic extract on evaporation, yields a viscous residue containing any triethanolamine, glycerol or ethylene glycol which may have been in the original material. It is shown that commercial triethanolamine gives with hydriodic acid a white crystalline substance having the formula  $(\text{CH}_2\text{OH} \cdot \text{CH}_2)_3\text{N} \cdot \text{HI}$  con-

taining 53.6 percent of the base and having a melting point of 169°. Details of the method are as follows: "An accurately weighed portion (about 0.5 gm) of the viscous residue from the alcoholic extraction described above is evaporated to dryness with 0.5 cc of constant-boiling 57 percent hydroiodic acid and 5 cc of water in a glass dish. The residue is stirred with 5 cc of pure isopropyl alcohol, transferred to a sintered glass crucible, and washed three times with 5 cc portions of the alcohol, the crystals being sucked as dry as possible after each washing. The crucible and contents are dried to constant weight at 100° C, and a correction of 1 mg for each cc of isopropyl alcohol used in the transfer and washing of the crystals is applied. The melting point of the product (169° C) serves to identify triethanolamine. The weight obtained, multiplied by 0.536, gives the weight of triethanolamine present." The method was tried out on commercial triethanolamine alone and in the presence of glycerol and ethylene glycol with highly satisfactory results.

**C-451—TRIETHANOLAMINE, MICROCHEMICAL STUDY OF**  
(*V. Arreguine, Rev. asoc. bioquim. argentina, 9, No. 33, 15-20, 1943*)

CoCl<sub>2</sub> gives rise to complexes with triethanolamine (I) which can be precipitated with a saturated solution of KNCS (II). Procedure: A drop of 0.5 percent solution of I is placed on a slide and evaporated at room temperature. A drop of 10 percent CoCl<sub>2</sub> saturated with II is placed near the residue and the whole covered with a cover glass, and observed under the microscope. Cu and Ni also form complexes. (Thru *C. A. 38*, 6236-7, 1944.)

**TRIGAMINE**

See Alkanolamines C-29-30-31

**TRIISOPROPANOLAMINE**

See Alkanolamines C-29-30-31

**TRIMAGNESIUM PHOSPHATE**

See Magnesium Phosphate C-232

**C-452—TURBIDIMETRIC TESTS**

(*U.S.P.*)

These tests are applied to certain official chemicals, to insure the absence of excessive amounts of chloride or sulfate.

In carrying out these turbidimetric tests, the following points are to be observed: The same quantities of the same reagents must be used in the test of the substance under examination and in the control test. The glass cylinders in which the tests are made must be of the same diameter and match in all other respects as closely as possible. The precipitating reagent must be added to both in immediate sequence.

**Chloride.** The prescribed quantity of the substance to be tested is dissolved in from 30 to 40 cc of distilled water, and the solution neutralized, if necessary, with nitric acid, using litmus paper as the indicator. One cc of nitric acid and 1 cc of silver nitrate T.S. are added and then sufficient distilled water to make 50 cc. After mixing well and allowing to stand 5 minutes protected from direct sunlight, the turbidity, if any, is compared with that produced in a control test made with the specified volume of fiftieth-normal hydrochloric acid.

Bismuth salts are first dissolved in a few cc of distilled water and 2 cc of nitric acid, then diluted with distilled water to 50 cc.

**Sulfate.** The specified quantity of the substance to be tested is dissolved in from 30 to 40 cc of distilled water, and the solution neutralized, if necessary, with hydrochloric acid, using litmus paper as the indicator. One cc of diluted hydrochloric acid and 1 cc of barium chloride T.S. are added and then sufficient distilled water to make 50 cc. After mixing well, it is allowed to stand for 10 minutes and the turbidity, if any, is compared with that produced in a control test made with the specified volume of fiftieth-normal sulfuric acid.

If the solution, after the addition of acid, is not perfectly clear, it is filtered through a filter paper free from chloride or sulfate, then the silver nitrate or the barium chloride is added.

When the tests for chloride or sulfate are to be applied to a specified volume of a solution of a substance prepared as directed in the text, and the permissible limit for these impurities corresponds to 0.2 cc or less of fiftieth-normal hydrochloric or sulfuric acid, the solution is not to be further diluted. The control test is also made with the same volume of water (or other specified solvent) as in the test.

In applying the turbidimetric tests to salts of heavy metals, which normally show an acid reaction, their aqueous solutions prepared for the test are not to be neutralized.

**C-453—UNSAPOONIFIABLE MATTER**

(*U.S.P.*)

The term "Unsaponifiable Matter" in oils or fats refers to those substances present that are not saponifiable by alkali hydroxides and are insoluble in water. It is determined as follows: Weigh 5 gm of the oil or fat into a 250-cc Erlenmeyer flask, add a solution of 2 gm of potassium hydroxide in 40 cc of alcohol, and heat under a reflux condenser for 2 hours, keeping the alcohol gently boiling. Evaporate the alcohol on a water bath, dissolve the residue in 50 cc of hot distilled water, and transfer the solution to a separator, rinsing the flask with two 25-cc portions of hot distilled water which are added to the separator. Cool to room temperature, and extract with two successive portions of 50 cc each of ether, and extract a few drops of alcohol to facilitate the separation of the two liquids. Combine the ether extracts in another separator and wash the ether solution first with 20 cc of an aqueous solution of sodium hydroxide (4 in 1000), then with 20 cc of an aqueous solution of sodium hydroxide (8 in 1000), and finally with 15-cc portions of distilled water until the last washing is not reddened by the addition of 2 drops of phenolphthalein T.S. Transfer the ethereal solution to a tared beaker, and rinse the separator with 10-cc of ether, adding the rinsings to the beaker. Evaporate the ether just to dryness on a water bath, and dry the residue for 30 minutes at 100° C. Cool the beaker in a desiccator for 30 minutes, and weigh the residue of unsaponifiable matter.

**C-454—UNSAPOONIFIED AND UNSAPONIFIABLE MATTER**

(*A.O.C.S.*)

**Extraction Cylinder:** The cylinder shall be a 250 cc glass stoppered cylinder about 35 mm (1 $\frac{3}{8}$ "') in diameter and about 30 cm (12") high.

**Petroleum Ether:** Redistilled petroleum ether, boiling under 75° C shall be used. A blank must be made by evaporating 250 cc with about 0.25 gm of stearin or other hard fat previously brought to constant weight by heating and drying as in the actual determination. The blank must not exceed a few milligrams.

**Determination:** Weigh 5 gm ( $\pm 0.2$  gm) of the prepared sample into a 250 cc Erlenmeyer flask or beaker which contains approximately 0.1 gm bicarbonate of soda, and dissolve in 100 cc of 50 percent redistilled ethyl alcohol. Warm and shake to effect solution, keeping the temperature under 60° C, and filter off any undissolved residue on a Gooch crucible with an asbestos pad or in a funnel using an asbestos pad deposited on a perforated porcelain disc. Wash three times with hot 50 percent alcohol and then with 5 cc of hot 95 percent alcohol. Wash with a small amount of petroleum ether to remove any traces of unsaponified and unsaponifiable matter. Transfer the entire alcohol-water and ether filtrate to the extraction cylinder and make up to 160 cc mark with 50 percent redistilled ethyl alcohol. Add 50 cc of petroleum ether, shake vigorously for one minute and allow to settle until both layers are clear. The volume of the upper layer should be about 40 cc. Draw off petroleum ether layer as closely as possible by means of a slender glass siphon, into a separatory funnel of 500 cc capacity. Repeat the extraction at least six times using 50 cc of petroleum ether each time. Wash the combined ether extracts in a separatory funnel first with a mixture of 15 cc of *N*/10 sodium hydroxide solution and 15 cc of 95 percent alcohol, and then three times with 25 cc portions of 10 percent alcohol, shaking vigorously each time. Transfer the petroleum ether extract to a beaker and evaporate off the petroleum ether on a steam bath in an air current.

Test the residue for solubility with 50 cc of petroleum ether at room temperature. Filter and wash free from the insoluble residue, if any; evaporate and dry in the same manner on the steam bath in a current of air, and finally in an air oven at 101° C for 30 minutes. Weigh and return to the oven, re-weighing at 15-minute intervals until constant weight is reached. Take up the residue in 50 cc of warm ethyl alcohol, neutralized to phenolphthalein, titrate to the same color as original neutral alcohol with *N*/25 sodium hydroxide solution and calculate to oleic acid. Deduct this figure from the gross weight previously found and report as "Unsaponified and Unsaponifiable Matter." (Note: Any blank from the petroleum ether must be deducted from the weight before calculating the unsaponified and unsaponifiable matter.)

**Unsaponifiable Matter:** Weigh 5 gm ( $\pm 0.2$  gm) of the prepared sample into a 200 cc Erlenmeyer flask. Add 30 cc of redistilled 95 percent ethyl alcohol and 5 cc of 50 percent aqueous potassium hydroxide and boil the mixture for one hour under a reflux condenser. Transfer to the extraction cylinder and wash to the 40 cc mark with redistilled 95 percent ethyl alcohol. Complete the transfer, first with warm then with cold water until the total volume is 80 cc, and finally with a small quantity of petroleum ether. Cool the cylinder and contents to room temperature and add 50 cc of petroleum ether; and then proceed with the extraction as outlined above under "Unsaponified and Unsaponifiable Matter," except the alkaline wash may be omitted; weigh the residue and correct for fatty acids. Report the results as "Unsaponifiable Matter."

From the total Unsaponified and Unsaponifiable Matter figure as found above, deduct the Unsaponifiable figure and report as "Unsaponified Matter."

(Note 1. The Committee wishes to emphasize the necessity of thorough and vigorous shaking in order to secure accurate results. The two phases must be brought into the most intimate contact possible; otherwise low and disagreeing results may be obtained.)

(Note 2. The above method will not remove all the unsaponifiable matter in soaps to which lanolin has been added. Many more extractions are required when substances of this nature are present.)

#### C-455—UNSAPONIFIABLE MATTER

(for normal animal & vegetable fats and oils)  
(A.O.C.S.)

**Extraction Cylinder.** The cylinder shall be glass-stoppered, graduated at 40, 80, and 130 cc, and about 35 mm (1½ inches) in diameter and about 30 cm (12 inches) high.

**Petroleum Ether.** Redistilled petroleum ether, boiling under 75° C, shall be used. A blank must be made by evaporating 250 cc with about 0.25 gm of stearin or other hard fat (previously brought to constant weight by heating) and drying as in the actual determination. The blank must not exceed a few milligrams.

**Determination.** Weigh 5 gm ( $\pm 0.20$  gm) of the prepared sample into a 200 cc Erlenmeyer flask, add 30 cc of redistilled 95 percent (approximately) ethyl alcohol and 5 cc of 50 percent aqueous potassium hydroxide, and boil the mixture for 1 hour under a reflux condenser. Transfer to the extraction cylinder and wash to the 40 cc mark with redistilled 95 percent ethyl alcohol. Complete the transfer, first with warm then with cold water, till the total volume is 80 cc, and finally with a small quantity of petroleum ether. Cool the cylinder and contents to room temperature and add 50 cc of petroleum ether. Shake vigorously for 1 minute and allow to settle until both layers are clear, when the volume of the upper layer should be about 40 cc. Draw off the petroleum ether layer as closely as possible by means of a slender glass siphon into a separatory funnel of 500 cc capacity. Repeat extraction at least six more times, using 50 cc of petroleum ether each time. Wash the combined extracts in a separatory funnel three times with 25 cc portions of 10 percent alcohol, shaking vigorously each time. Transfer the petroleum ether extract to a wide-mouth tared flask or beaker, and evaporate the petroleum ether on a steam bath in an air current. Dry as in the method for Moisture and Volatile Matter. Any blank must be deducted from the weight before calculating unsaponifiable matter. Test the final residue for solubility in 50 cc of petroleum ether at room temperature. Filter and wash free from the insoluble residue, if any, evaporate, and dry in the same manner as before. The Committee wishes to emphasize the necessity of thorough and vigorous shaking in order to secure accurate results. The two phases must be brought into the most intimate contact possible; otherwise low and disagreeing results may be obtained.

The Committee has considered unsaponifiable matter to include those substances frequently found dissolved in fats and oils which are not saponified by the caustic alkalies but are soluble in the ordinary fat solvents. The term includes the higher alcohols, such as cholesterol, which is

found in animal fats, and phytosterol, found in some vegetable fats, paraffin and petroleum oils, etc. Unsaponifiable matter should not be confused in the lay mind with insoluble impurities or soluble mineral matter.

The method adopted by the Committee has been selected only after very careful consideration of other methods, such as the dry extraction method and the wet method making use of the separatory funnel. At first the dry extraction would seem to offer the best basis for an unsaponifiable matter method, but in practice it has been found impossible for different analysts to obtain agreeing results when using any of the dry extraction methods proposed. Therefore, this method had to be abandoned after numerous trials, although several members of the Committee strongly favored it in the beginning.

**C-456—UNSAPONIFIABLE MATTER—MODIFIED KERR-SORBER METHOD**

(A.O.C.S.)

For abnormal fats and oils with excessive amounts of unsaponifiable matter, higher alcohols in excess, etc., fish liver, whale oils, waxes, etc.

Weigh 5 gm of the sample into a 200 cc Erlenmeyer flask. Add 30 cc of 95 percent ethyl alcohol and 3 cc of an aqueous solution of potassium hydroxide (100 gm of alkali in 100 cc of water). Boil gently for about 20 minutes. After the solutions begin to boil, agitate the flasks gently until the sample has been dissolved by the alcohol. Cool the solutions to about 30° C. Add 50 cc of ethyl ether, mix, and transfer to a 500 cc separatory funnel. Rinse flask with two successive 50 cc portions of ethyl ether, adding them to the separatory funnel, and mix by gently rotating the funnel. Add 100 cc of N/5 solution of potassium hydroxide to the saponification flask, shake and pour into the separatory funnel in a slow, steady stream. Rotate the funnel very gently to secure better contact of the solutions but do not shake. Shaking at this stage results in the formation of a stubborn emulsion. Allow the separatory funnel to stand for 5 or 10 minutes, then draw off the soap solution slowly and as completely as possible. If in any case a layer of emulsion is formed, do not draw it off. Keep the volume of ether at about 150 cc by replacing that dissolved by the aqueous wash solutions. Treat the ether solution with two successive 100 cc portions of N/5 alkali solution in the same manner as described above. Add 30 cc of water to the ether and rotate the separatory funnel rapidly to extract the alkali. When the layers have separated, withdraw the water and repeat this treatment until the washings are free from alkali as shown by testing with phenolphthalein. Usually not more than three washings with 30 cc portions of water are required. Transfer the ether solution to a weighed flask, preferably a 300 cc Erlenmeyer flask, distil the ether, and dry the residue to constant weight, as recommended in the F.A.C. procedure.

**C-457—UNSATURATES, DETERMINING**

(*Thru Oil and Soap* 21, 117, 1944)

The intensity of the yellow to red color produced by the reaction of tetrannitromethane with fats in carbon tetrachloride solution formed the basis of a new procedure for determining the amount of unsaturation (*Kaufmann-Ber. 75B, 1201*). When read with a Pulfrich photometer the

intensity of the color rose with the iodine value of the sample. Values determined by the method were within  $\pm 5$  of those determined bromometrically. This reagent was also a good elaidinization and polymerization catalyst and with suitable procedures it served for oxidizing fat acids and other organic compounds in investigations regarding their structure.

**C-458—UREA**

(U.S.P.)

Heat about 0.5 gm of urea in a test tube: it liquefies, and ammonia is evolved. Continue the heating until the liquid becomes turbid, then cool. Dissolve the fused mass in a mixture of 10 cc of distilled water and 1 cc of an aqueous solution of sodium hydroxide (1 in 10), and add 1 drop of cupric sulfate T.S.: the solution acquires a reddish violet color.

Dissolve 0.1 gm of urea in 1 cc of distilled water, and add 1 cc of nitric acid: a white crystalline precipitate is produced.

**C-459—UREA, REACTION FOR—BRUCKE**

(*Merck Index*)

Urea in alcoholic solution is precipitated in crystalline form by an ether solution of oxalic acid. The test is more sensitive using amyl alcohol solutions of urea and of oxalic acid.

**C-460—UREA, REACTION FOR—SCHIFF**

(*Merck Index*)

Treat a crystal of urea with a drop of furfural water and a drop of concentrated HCl. The mixture becomes yellow, then green, blue, violet and purple-violet.

Ganassini recommends a mixture of 5 drops of furfural in 2 cc 96 percent alcohol, 2 cc water, and 1 cc of concentrated HCl. Traces of urea produce a purple-red to violet color with this solution.

**C-461—VANILLIN**

(U.S.P.)

(a) Vanillin is readily dissolved by aqueous solutions of alkali hydroxides, and from these solutions, when not too dilute, it is precipitated at once by the addition of acids. (b) To 10 cc of a cold, saturated aqueous solution of Vanillin add 3 to 5 drops of ferric chloride T.S.: a blue color is produced. When this mixture is heated at about 80° C for a few minutes, the blue color changes to brown, and, when cooled, it deposits a white or nearly white precipitate. (c) Vanillin is extracted completely from its solution in ether by shaking with a saturated, aqueous solution of sodium bisulfite, from which it is precipitated by acids. (d) A cold, aqueous solution of vanillin, when treated with lead subacetate T.S., yields a white precipitate, which is sparingly soluble in hot water but soluble in acetic acid.

**C-462—QUALITATIVE DIFFERENTIATION OF VANILLIN AND COUMARIN**

(*Norman L. Knight, Chemist Analyst*, 21, No. 4, 15, 1932)

If a crystal of vanillin be dissolved in about 10 cc of 38N sulfuric acid, which is then cautiously poured into a large beaker containing a few drops of water, a deep purple color will appear. If the color is slow in developing, add a few more drops of water, a drop at a time, and mixing after the addition of each drop by gently swirling

the beaker. The color will not appear without the presence of this small amount of water, and disappears on further dilution.

The same treatment applied to a coumarin crystal produces a deep red color.

If these colored solutions be allowed to stand over night, the vanillin solution turns a dirty gray-green and the coumarin solution a pale lavender or lilac.

These reactions were discovered as a result of treating with 38% sulfuric acid a kerosene spray scented with vanillin. The purple color was first noted in the supernatant layer of clear unsulfonated oil. The development of the color during sulfonation evidently indicates the presence of a small amount of water as well as vanillin (or coumarin, as the case might be), since a small amount of water is evidently essential.

#### C-463—VEGETABLE OILS, TEST FOR—WELMANS

(Merck Index)

Dissolve 1 cc of the oil or fat to be tested in 5 cc of chloroform, add 2 cc of a 5 percent solution of sodium phosphomolybdate acidified with  $HNO_3$ , and shake for about 1 minute. If the fat contains vegetable oil, the mixture becomes green, and on the addition of ammonia, blue. Cocoanut oil and bleached and rancid oils do not give this reaction.

#### C-464—VOLATILE ACIDS, SOLUBLE AND INSOLUBLE

Reichert-Meissl and Polenske Values—Official

(A.O.A.C.)

**Reagents:** (a) Sodium hydroxide solution.—(1 + 1). Protect solution from contact with  $CO_2$ . Allow solution to settle and use only clear liquid.

(b) Pumice stone. Heat small pieces to white heat, plunge into  $H_2O$ , and keep there until used.

(c) Glycerol-soda solution. Add 20 ml of the 1 + 1 NaOH solution to 180 ml of pure concentrated glycerol.

**Determination.** Weigh accurately 5 gm of sample to be tested into clean, dry, 300 ml flask; add 20 ml of the glycerol-soda solution and heat over flame or asbestos plate until complete saponification occurs, as shown by mixture becoming perfectly clear. If foaming occurs, shake flask gently. Add 135 ml of recently boiled  $H_2O$ , dropwise at first to prevent foaming, then add 6 ml of  $H_2SO_4$  (1+4) and a few fragments of pumice stone. Distil without previously melting the fatty acids, using apparatus of approximate dimensions illustrated in Fig. 129. Rest flask on piece of asbestos board having a hole 5 cm in diameter in center, and so regulate flame as to collect 110 ml of distillate in as near 30 min. as possible and to allow distillate to drip into receiving flask at temperature not higher than 18-20°.

When distillation is complete, substitute for receiving flask a 25 ml cylinder to collect any drops that may fall after flame has been removed. Mix without violent shaking, immerse flask containing distillate almost completely in  $H_2O$  at 15° for 15 minutes, filter the 110 ml of distillate through dry filter paper 9 cm in diameter, and titrate 100 ml with the standard NaOH solution, using phenolphthalein (1 percent alcoholic solution) as indicator. The pink color should remain unchanged for 2 or 3 minutes. The Reichert-Meissl value is the number of ml of 0.1 N NaOH solution used times 1.1, after this result is corrected for figure obtained in blank determination.

Remove remainder of soluble acids from insoluble acids upon filter paper by washing with 3 successive 15 ml portions of  $H_2O$ , previously passed through the condenser, the 25 ml cylinder, and the 110 ml receiving flask. Dissolve the insoluble acids by passing successive 15 ml portions of neutral alcohol, 95 percent by volume, through filter paper, each portion having previously passed through the condenser, the 25 ml cylinder, and the 110 ml receiving flask. Titrate combined alcoholic washings with the standard NaOH solution, using the phenolphthalein as indicator. The Polenske value equals number of ml of alkali solution required for the titration.

**Note.** Unless these directions are followed in every detail as described, satisfactory results cannot be obtained.

#### KIRSCHNER VALUE—OFFICIAL

To 100 ml of the Reichert-Meissl distillate, in 200 ml Erlenmeyer flask, add 6 drops of phenolphthalein solution

and titrate to very faint pink with a 0.1 N  $Ba(OH)_2$  solution. Add 0.3 gm of finely powdered  $Ag_2SO_4$ . During next hour shake mixture frequently, filter, and transfer 100 ml of filtrate to 300 ml flask. Add 10 ml of  $H_2SO_4$  (1+40), 35 ml of  $H_2O$ , and a piece of Al wire or several small pieces of pumice stone [See (b) under "Soluble and Insoluble Volatile Acids (Reichert-Meissl and Polenske Values")]. Distill 110 ml in about 20 minutes, using Polenske apparatus, Fig. 129. Titrate 100 ml of distillate with 0.1 N  $Ba(OH)_2$  solution, make blank determination, and after correcting number of ml of alkali used, calculate the Kirschner value according to following formula:

$$K = \frac{A \times 121(100+B)}{10,000}, \text{ in which } A = \text{corrected Kirschner titration and } B = \text{number of ml of standard alkali solution to neutralize the 100 ml Reichert-Meissl distillate.}$$

Butter fat gives Kirschner values from 19 to 26, coconut oil gives an average of 1.9 and palm kernel oil, 1.0, whereas the majority of other fats and oils give values from 0.1 to 0.2.

#### C-465—VOLATILE HYDROCARBONS

(A.O.C.S.)

This method requires a source of dry, oil-free steam which is passed through the sample treated with acid, sufficient to liberate the fatty acids from the soap. The steam is next passed through strong caustic solution to scrub out

any volatile fatty acids while the volatile hydrocarbons are condensed with the steam in a suitable arrangement which allows the excess water to flow away leaving the volatile hydrocarbon in the measuring burette. The method may be applied to samples containing substances immiscible with water and volatile with steam. For solvents heavier than water a Bidwell Stirling tube should be used.

**Apparatus:** The apparatus and its arrangement are shown in the sketch. The following are the important items, lettered to correspond to the lettering of the sketch, Figure 130.

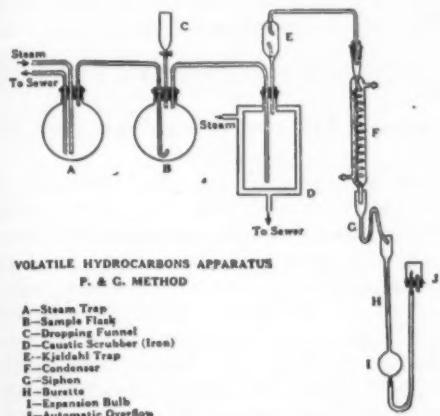


Figure 130. Volatile Hydrocarbons apparatus and arrangement

**Steam Trap**, A, a liter round bottom ring neck flask equipped with a siphon tube to the drain from the bottom of the flask and provided with a means of regulating the steam flow from the flask.

**Evolution or sample flask**, B, a liter round bottom ring neck flask. In case large samples are desirable the size of this flask may be increased.

**Caustic scrubber flask**, D, a steam jacketed metal flask is preferred, but a liter Florence flask provided with a steam coil of  $\frac{1}{8}$  in. copper tubing around the upper half may be used. If the glass flask is used it should be provided with a safety bucket below it and should be renewed frequently since the strong caustic dissolves the glass rather rapidly. This flask should be connected to the condenser by a Kjeldahl connecting tube, E, or similar safety device.

The inlet for the steam into the evolution and scrubber flasks should extend nearly to the bottom of the flasks and be bent at right angles and parallel to the sides of the flask.

**Condenser**, F, a 12-in. or longer spiral condenser of sufficient bore so the condensate will not readily close it.

**Measuring Burette**, H, a 10 ml burette calibrated to 0.1 ml and carrying a bulb, I, approximately 100 ml capacity, at the lower end.

The stoppers used should be of a good grade of rubber and should have been thoroughly cleaned free from any surface sulfur and should be given a steam distillation in position for several hours before use on a sample.

Insulating the flasks and tubing to reduce condensation aids distillation and its control.

**Determination:** Place 150 ml NaOH solution (about 46° Bé) and several sticks of solid NaOH, to provide against dilution in the scrubber flask. Rinse out the condenser and burette with acetone. Attach a rubber tubing to the

lower end of the burette, fill the burette and tubing with water and raise the outer end of the tubing so that the water level in the burette is near the top of the scale when the water is flowing to the drain from the automatic overflow, J. Be sure the connections are tight and that the tubing contains no air bubbles. Place the condenser in position so the lower end extends directly into the upper end of the burette just above the water level or connect to an adapter siphon, G, which discharges into the burette. The cooling water should be 15.5° C or colder. Ice water may be desirable for low boiling hydrocarbons.

Weigh 100  $\pm$  0.5 gm of the soap (cut into cubes of about 1 cm edges) or 50  $\pm$  0.3 gm of soap powder and transfer to the evolution flask. Add about 10 gm of gum arabic (commercial) and 100 ml of distilled water. Place the flask in position with 100 ml of 1:3 H<sub>2</sub>SO<sub>4</sub> in a dropping funnel, C, carried in the stopper. Connect the steam, evolution, and wash flasks and condenser into position, making sure that the stoppers are tightly fitting and held in place by wiring. Rubber connections in the lines between the evolution flask and condenser should be avoided.

Add the acid to the sample slowly to avoid excessive frothing. While adding the acid, turn on the steam cautiously, so adjusting the pressure by a bleeder valve that just enough steam flows to prevent any liquid backing into the steam trap flask.

When all the acid has been added, turn on enough steam to cause brisk distillation, taking care that no liquid is carried over from the evolution and wash flasks, and that the condenser water does not become warm.

Continue the distillation until there is no increase in the volume of the upper layer for 45 minutes or no small droplets can be noted in the condensate.

When distillation is completed, shut off and drain condenser water and allow the steam to heat up the condenser to drive out the last traces of volatile hydrocarbon. Shut off the steam as soon as vapor begins to issue from the lower end of the condenser. Immediately open the stopcock of the dropping funnel to prevent caustic being drawn into the evolution flask.

Stopper the burette and allow its contents to come to room temperature or bring them to a definite temperature by placing the burette in a water bath held at 25° C for one to two hours.

Read the volume of the upper layer to the nearest 0.01 ml. The volume times the specific gravity equals the weight of the volatile hydrocarbon. The specific gravity should be determined at the temperature at which the volume is read. A small Sprengel tube made of 3 mm glass tubing is convenient for this purpose.

**Calculation:**

$$\text{ml of volatile hydrocarbon} \times \text{specific gravity} \times 100$$

$$\text{Weight of sample} \\ = \% \text{ of volatile hydrocarbon.}$$

For some samples the volatile hydrocarbon content may be so low that a larger sample than 50 or 100 gm is desirable. The size of the evolution flask may need to be increased, if larger samples are used. The amount of water in the evolution flask and acid used should also be correspondingly increased.

#### C-466—WATER

##### (Qualitative test)

Place the substance in an *anhydrous* solvent such as acetone. Add a few pieces of calcium carbide. If water is present, acetylene is formed which dissolves in the solvent. Place some of the acetone solution in an ammoniacal solution of cuprous chloride. A red color of cupro-carbide forms, denoting the presence of water. This test is described in detail by Weaver in the *Journal of the American Chemical Society*, **36**, 2462, 1914. See also P 87, 88, 89, 90, 91, 91a.

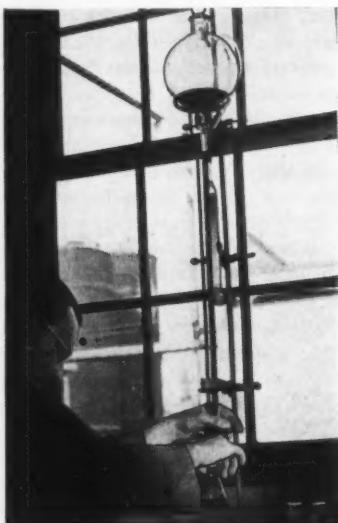
#### C-467—WATER, KARL FISCHER REAGENT

(Fisher Scientific Company)

Karl Fischer Reagent may be regarded as the universal specific reagent for water. To this date, the reagent seems to have only two limitations—use in the presence of inorganic alkalies or olefins.

The Karl Fischer Reagent is furnished in two bottles to insure full strength and stability at the time the reagent is put into use. Solution No. 1 is a saturated solution of sulfur dioxide in pyridine and Solution No. 2 is a solution of iodine in methanol. The small bottle of Solution No. 1 is added to the contents of the larger bottle just prior to use and precautions are taken throughout the determination to exclude moisture from the reagent.

Briefly, the method is to prepare the sample as would be done for oven drying (crushing or shredding solids, e.g.). A weighed sample is placed on the titrating stand of the Fisher Junior Titrimeter and an excess of the



Courtesy U. S. Industrial Chem., Inc.

Figure 131. The Karl Fischer reagent is used to determine minute quantities of water.

- 1 Beeswax, m. p. 60-62° C.
- 2 Montan, bleached, m. p. 68° C.
- 3 Candelilla, m. p. 70.5° C.
- 4 Carnauba refined, m. p. 81.5° C.
- 5 Carnauba No. F yellow, m. p. 83° C.
- 6 Ozokerite, m. p. 65-67° C.
- 7 Ozokerite, m. p. 76-78° C.

Figure 132. Precipitation Temperatures

E. & A. Karl Fischer Reagent in a measured amount is added from one of the instrument's burettes. This excess reagent—above that required to react with all water present—is then back titrated with E. & A. Water-in-Methanol Reagent placed in the instrument's other burette. The exact end point is automatically indicated by the sensitive indicator needle.

Original article by Karl Fischer introducing this reagent for the direct determination of water by titration occurred in *Angew. Chem.* **48**, 394, 1935. He studied this reagent for use on benzene, liquid sulfur dioxide, methanol, acetone, petroleum fractions, Fuller's earth, hydroxides, copper sulfate and calcium carbonate.

#### C-468—IDENTIFICATION OF COMMONLY USED WAXES IN ADMIXTURE

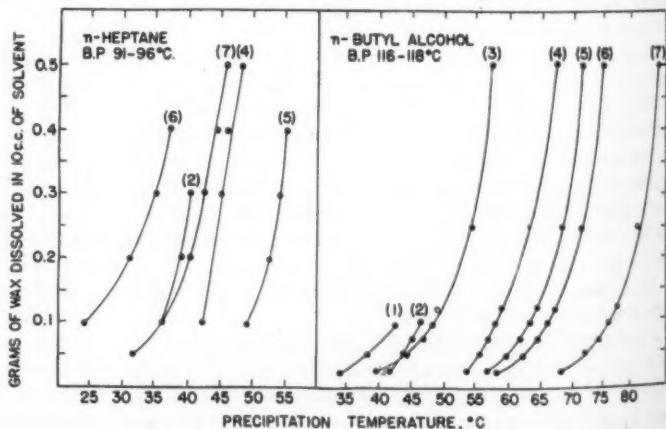
(S. Zweig and A. Taub, *Ind. & Eng. Chem., Anal. Ed.*, **12**, 9, 1940)

There are a number of outstanding differences in the composite nature of these waxes as a whole which may be used as a basis for an analytical procedure. These are: variation in proportion of acids, alcohols, and hydrocarbons; difference in chain length of the two components of the ester; and the presence of additional distinctive components such as resinlike substances and ketones.

The method outlined here utilizes these differences. Through the following procedures a practical system of identification has been evolved, which is based on the determination of pertinent physical and chemical constants, and the quantitative separation of waxes into groups of homologous compounds and the determination of the properties of the separated fractions.

A physical constant of particular significance, which at present has not been applied to any great extent to waxes, is the dissolution temperature, or more precisely the temperature of precipitation of wax solutions of definite concentration. This constant was found valuable in the detection of carnauba wax and the hydrocarbon wax ozokerite.

**Precipitation Temperatures:** As used in this paper, is the temperature at which a wax solution of definite concentration just begins to crystallize as the temperature is gradually decreased. Preliminary experiments with solutions of equal concentrations of various waxes show marked differences in the precipitation temperatures. Solutions of carnauba wax and ozokerite precipitated at much higher temperatures than corresponding solutions of other waxes. Furthermore, it was found that the pres-



ence of other waxes admixed with carnauba and ozokerite did not appreciably affect the precipitation temperature. This is in agreement with the results found by Armani & Rodano on mixtures of paraffin and ozokerite, and by Waentig and Peschek on mixtures of fatty acids in certain solvents.

**Procedure:** The finely grated wax is weighed and added to 10 cc of solvent contained in a jacketed test tube (the inner tube is  $1.5 \times 13.75$  cm; the outer,  $2.5 \times 15$  cm), and then placed in a thermostatically controlled bath which has been previously heated to a temperature at which the wax will dissolve. The temperature of the bath is then allowed to decrease gradually, not more than  $1^{\circ}$  per minute. The temperature is recorded at the point at which crystals just begin to form. In most instances this

point is fairly sharp. In others, however, because of the gradual precipitation the exact temperature is uncertain. The limit of observational error is  $\pm 1^{\circ}$  C.

#### SEPARATION AND COMPARISON OF PROPERTIES OF WAX COMPONENTS

**ALCOHOL-SOLUBLE FRACTION.** Alcohol extraction is an established method for the determination of stearic acid and rosin in beeswax. In order to extend this procedure to the estimation of these substances in other waxes, it is necessary to have a knowledge of the quantity as well as the properties of the alcohol-soluble fractions of all the waxes.

**Procedure.** Fifty gm of wax are melted in a 400-cc beaker and extracted by treating with four 150-cc vol-

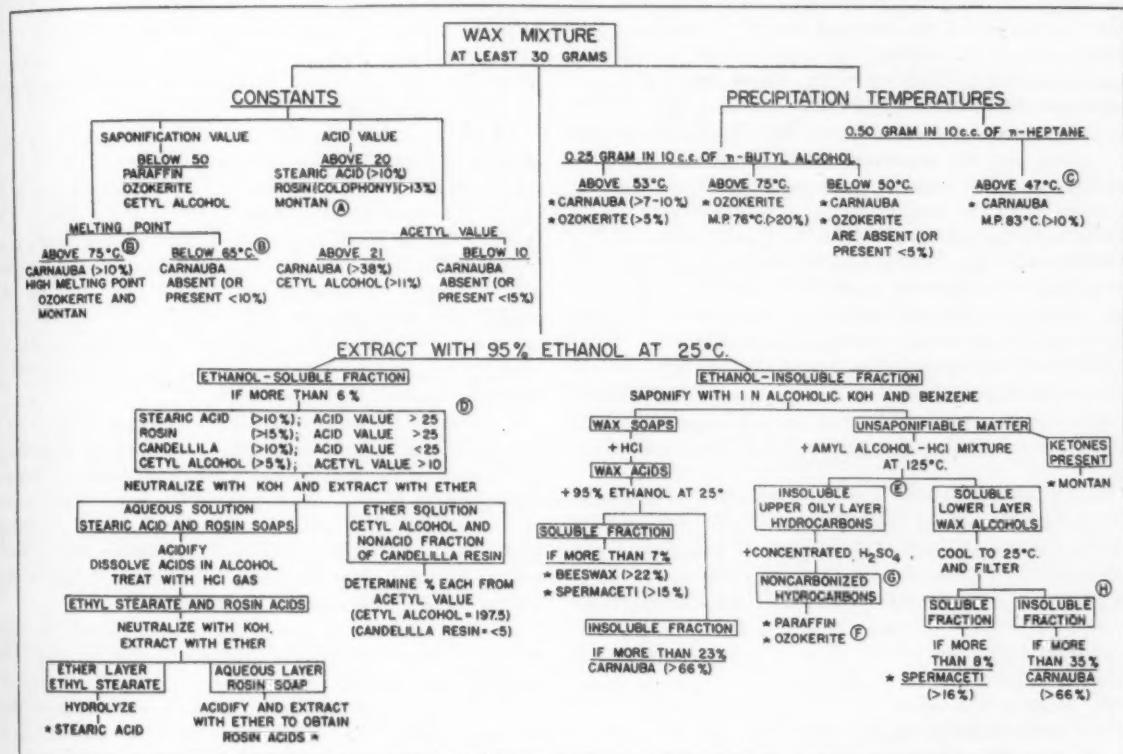


Figure 133. Schematic outline for identification (Percent figures are based on weight of original sample of wax mixture.)

- A. Variations in composition of montan make definite statement concerning quantity impossible.
- B. Based on data from Koch et al. and Lewkowitsch.
- C. Candelilla forms a cloudy solution in *n*-heptane and therefore interferes with determination of precipitation temperatures in the solvent.
- D. Rosin and candelilla resin form cloudy solutions in *n*-heptane.
- E. Absence of a hydrocarbon fraction (solid at  $25^{\circ}$  C) indicates the absence of not only paraffin and ozokerite but also of candelilla ( $>5$  percent), beeswax ( $>10$  percent), and montan.
- F. 20 to 30 percent of raw ozokerite is attacked by concentrated sulfuric acid.
- G. Hydrocarbons from candelilla, beeswax, and montan are carbonized.
- H. Since alcohols of other waxes are also found in this fraction and are closely related to carnauba wax alcohols, this fraction is of value only when a high percentage of carnauba is present (over 60 percent).

The percent figure in parentheses indicates the quantity that will always be detected by the determination; when preceded by " $>$ " it indicates that the presence of the quantity stated, or more, will be detected. A smaller quantity may or may not be detected, depending upon a knowledge of the presence or absence of certain other waxes. For example, more than 8 percent of wax alcohols soluble in amyl alcohol-hydrochloric acid at  $25^{\circ}$  C indicates spermaceti (16 percent). When the spermaceti present in the wax mixture exceeds 16 percent, the fraction soluble in cold amyl alcohol-hydrochloric acid mixture will always be more than 8 percent, and spermaceti will always be detected by this determination. However, if the spermaceti in the wax mixture is less than 16 percent, wax alcohols soluble in amyl alcohol-hydrochloric acid may or may not exceed 8 percent, depending upon the nature and quantity of other waxes present in the mixture.

Table I indicates that the percent of the fraction soluble in amyl alcohol-hydrochloric acid for all the waxes determined is: spermaceti, 48 percent; candelilla, 8 percent; beeswax, 5 percent; carnauba, 3 percent. As candelilla contains as much as 8 percent of substances soluble in amyl alcohol-hydrochloric acid, spermaceti cannot be determined with certainty unless this fraction is over 8 percent of the total wax mixture (16 percent of spermaceti). However, if the approximate quantity of candelilla and/or beeswax is first ascertained, less than 16 percent of spermaceti can be detected.

Where the name of a substance is starred, that particular determination is of greatest analytical significance for the identification of the substance.

umes of boiling 95 percent alcohol. The alcohol solution is decanted while hot, and allowed to cool to 25° C. The precipitate is then collected on a Büchner funnel, washed twice with 50 cc of cold alcohol, and combined with the residue that remains from the original hot extraction. The filtrate is evaporated and the residue weighed.

The alcohol solubles of beeswax and spermaceti have a soft wax-like consistency, and are completely soluble in *n*-heptane and cyclohexane.

**ALCOHOL-INSOLUBLE FRACTION.** Ten gm of the fraction insoluble in 95 percent alcohol at 25° C are saponified by boiling for 2 hours with a mixture of 50 cc of benzene and 25 cc of alcoholic potassium hydroxide (45 gm of potassium hydroxide in 1000 cc of absolute alcohol). Fifty cubic centimeters of hot water are added and the aqueous layer is drawn off and washed with three successive volumes of 50, 30, and 30 cc of benzene. The combined benzene solution is washed with an alkaline aqueous-alcohol mixture (2 to 1). The benzene is evaporated and the unsaponifiable matter dried at 110° C. To the soap solution, 15 cc of concentrated hydrochloric acid are added and the separated acids are shaken out with hot benzene. The benzene layer, separated from the acid aqueous layer, is washed twice with equal volumes of water, and evaporated. The acids are then dried at 110° C.

In this way, the alcohol-insoluble portion is divided into 1) substances soluble in aqueous alkali after saponification (chiefly acids), 2) substances insoluble in aqueous alkali, but soluble in benzene (unsaponifiables).

The acids are dissolved in hot alcohol 95 percent, the solution is allowed to cool to 25° C, filtered and allowed to set. Two fractions are formed, the one containing cold solubles and the other the portion insoluble in cold alcohol.

**Unsaponifiable Matter:** For the separation of the alcohols and hydrocarbons in this fraction a modification of Leys' method was used. This method is based upon the insolubility of hydrocarbons in a boiling mixture of equal parts of fuming hydrochloric acid and amyl alcohol; the alcohols are soluble in this mixture at the boiling point. A further separation of the alcohols is based upon the insolubility in this solvent mixture at room temperature of the alcohols with more than 22 carbon atoms.

The unsaponifiable matter (from 10 gm of wax) is dissolved in 100 cc of hot amyl alcohol and 100 cc of concentrated hydrochloric acid (36 percent) are added. The mixture is stirred and boiled over an asbestos plate for about 5 minutes. The presence of hydrocarbons is evidenced by an oily layer on the surface of the liquid. Upon cooling, a disk of solidified hydrocarbons can be lifted from the lower amyl alcohol-hydrochloric acid layer. The residual liquid is filtered through a Büchner funnel and the precipitate washed twice with 25 cc of amyl alcohol-hydrochloric acid mixture. The filter paper with the precipitate is placed in a large evaporating dish and boiling water is added. The oily layer of wax alcohol rises to the top and solidifies on cooling. The filtrate containing the soluble alcohols is washed in a separatory funnel with hot water until free from hydrochloric acid. The amyl alcohol is then evaporated or vacuum-distilled, and the alcohols are dried and weighed.

This divides the unsaponifiable matter into three fractions: (1) substances insoluble in hot amyl alcohol-hydrochloric acid mixture (chiefly hydrocarbons); (2) sub-

stances soluble in hot amyl alcohol-hydrochloric acid mixture but insoluble in cold amyl alcohol-hydrochloric acid mixture (mainly alcohols of high molecular weight, such as ceryl or myricyl); (3) substances soluble in cold amyl alcohol-hydrochloric acid mixture (mainly wax alcohols of low molecular weight, such as cetyl alcohol).

**SPERMACETI.** The unsaponifiable matter, totaling 48 percent, is found in the fraction soluble in cold amyl alcohol-hydrochloric acid. All the acids are soluble in cold ethyl alcohol. When added to other waxes, spermaceti causes a lowering of the acid value, melting point, and acetyl value. The ethanol-soluble fraction is small, and hydrocarbons are absent.

**BEESWAX.** Seventy-five percent of the acids are soluble in cold alcohol. (If spermaceti is present, as indicated by the quantity of cold amyl alcohol-hydrochloric acid fraction, the amount of acids in excess of the combining ratio of alcohols and acids, 1 to 1, which form the ester of spermaceti permits the calculation of the approximate quantity of beeswax.)

**CARNAUBA.** The precipitation temperatures in *n*-butyl alcohol and in *n*-heptane are much higher than those of other waxes (ozokerite excepted). Hydrocarbons are present in but very small amounts (about 1 percent). The acetyl value is much higher than that of any other wax studied. The melting point of a wax mixture is considerably increased by the addition of small quantities of carnauba. The acids and alcohols are mostly of high molecular weight; consequently, both the cold alcohol-soluble acid fraction and the fraction soluble in cold amyl alcohol-hydrochloric acid are very small.

**CANDELILLA.** The alcohol-soluble fraction consists of a resinous material and constitutes approximately 20 percent of the wax. This fraction has a low acid value, in contradistinction to rosin (colophony) which has an acid value of about 160. The resinous material may be separated from rosin and stearic acid by neutralizing the alcohol-soluble fraction with potassium hydroxide, adding water, and extracting with ether or benzene.

The acid fraction of candelilla is dark brown in color and more than 75 percent is insoluble in cold alcohol. The hydrocarbon fraction is relatively large. The hydrocarbons differ from paraffin or refined ozokerite hydrocarbons in being readily carbonized by concentrated sulfuric acid.

**MONTAN.** Considerable differences are found in the composition of the three varieties of montan, but all invariably contain montanic acid ( $C_{29}H_{50}O_2$ ), free or combined as an ester. The proportion of hydrocarbons is large, and ketones have been found in the raw and the distilled products. The presence of resinous substances and sulfur-containing compounds differentiates the raw montan from the distilled and bleached products.

Because of the absence of alcohols, the acetyl value of the unsaponifiable matter of distilled wax is for all practical purposes zero, whereas the raw and refined wax contain varying amounts of alcohols of high molecular weight, such as ceryl or myricyl. The presence of ketones in the unsaponifiable matter is an important clue to the identification of montan. Ketones are estimated by reducing with sodium in alcohol to secondary alcohols and determining the difference in hydroxyl value before and after reduction. They may also be estimated by the method of Mangouri, which is based on the insolubility in boiling methyl alcohol of the barium salt of a hydrazone formed when

the ketones are treated with *p*-hydrazinebenzoic acid.

**PARAFFIN.** The hydrocarbons are not attacked by concentrated sulfuric acid, whereas wax hydrocarbons are carbonized by this acid. The addition of paraffin to a wax mixture appreciably lowers the saponification value.

**OZOKERITE.** The precipitation temperatures in *n*-butyl alcohol and *n*-heptane are much higher than those of all the other waxes (carnauba excluded). The hydrocarbons of the refined ozokerite are not attacked by concentrated sulfuric acid.

The precipitation temperatures of the unattacked hydrocarbons can be used to differentiate paraffin qualitatively from ozokerite. Graef's method may be applied to determine whether both are present.

**ROSIN (COLOPHONY).** Rosin, which is found in the cold alcohol-soluble fraction, has a very high acid value (about 160), and can be differentiated from stearic acid in that rosin acids are not converted into ethyl esters when treated in alcohol solution with hydrogen chloride gas. Addition of rosin to a wax mixture raises the acid value considerably (10 percent of rosin increases the acid value by 16). Color reactions for rosin, such as the Liebermann-Storch reaction, are not very reliable since candelilla and montan produce similar colors.

**STEARIC ACID.** This acid, like rosin, is found in the alcohol-soluble fraction, and is differentiated from rosin as indicated above. The acid value of a wax mixture is increased by 20 when 10 percent of stearic acid is added.

**CETYL ALCOHOL.** This alcohol is identified by the high acetyl value of the alcohol-soluble fraction. The acetyl value of the entire wax mixture is increased by 20 for each 10 percent of added cetyl alcohol.

#### C-469—WAXES, SAPONIFICATION VALUE OF, BY USE OF MIXED SOLVENTS

(*M. W* and, *Chemist Analyst*, **28**, No. 3, 53, 1939) . . .

Determination of the saponification values of waxes has always been a troublesome operation in the analytical laboratory, particularly in waxes, such as montan and carnauba, which have a high melting-point and a large proportion of unsaponifiable matter. The conventional method uses half-normal alcoholic potash with prolonged boiling for several hours under reflux. Consistent results are difficult to obtain, as the alcohol never completely dissolves the wax sample and one cannot feel certain that saponification has been completed. By adding a measured amount of toluene and keeping the total volume of alcoholic potash solution in a definite ratio with the weight of the wax sample taken, the author has found that the solution of the wax is complete and the saponification values obtained are consistent and dependable.

The wax remains in solution throughout the boil because of the strong solvent power of the toluene, which itself is miscible with alcohol in all proportions. Benzol also could be used but is not as satisfactory since it tends to boil away faster than alcohol, carrying some of the wax above the level of the liquid in the reaction flask where it is out of the contact zone of the alkali. Toluene, having a much higher boiling-point than alcohol, retains the wax in solution at all times during the boil. Since it is not desirable to weaken a half-normal potash solution by addition of solvents, the alkali reagent is made up somewhat stronger, namely, seven-tenths normal. After addition of a measured amount of toluene, the mixed solvent has a

concentration of just half-normal KOH.

**Procedure:** Place 2 gm of the wax in a dry 250 ml Erlenmeyer flask. Measure in exactly 10 ml of toluene (Baker's purified grade). Warm gently on a hot plate until the wax has dissolved, but do not boil. Now, from an accurate pipette, run in 25 ml of seven-tenths normal alcoholic potassium hydroxide (containing approximately 39 gm of KOH per liter). At this point some of the dissolved wax will be precipitated, but it will readily redissolve when the flask is warmed. A blank determination is made by measuring the same amounts of toluene and reagent into a second flask. Place both flasks under reflux condensers and hold at a gentle boil for 2 hours. At the end of this period saponification is complete. Add 5 or 6 drops of phenolphthalein indicator and titrate to complete disappearance of pink. The blank, containing 25 ml of alcoholic potash, will require 35 ml of half-normal hydrochloric acid. The difference between the blank and the sample measures the amount of KOH consumed in the saponification. That is, 1 ml of half-normal HCl is equivalent to 28.06 mg of KOH.

#### C-470—ZINC

(U.S.P.)

In the presence of sodium acetate, zinc salts yield a white precipitate with hydrogen sulfide. This precipitate is insoluble in acetic acid but is dissolved by diluted hydrochloric acid. Ammonium sulfide produces a similar precipitate in neutral or alkaline solutions. Zinc salts in solution yield with potassium ferrocyanide T.S. a white precipitate which is insoluble in diluted hydrochloric acid.

#### C-471—ZINC ACETATE

(U.S.P.)

**Assay:** Dissolve about 1 gm of zinc acetate, accurately weighed, in about 100 cc of distilled water. Heat the solution to about 90° C., and add sodium carbonate T.S., drop by drop to precipitate all of the zinc. Avoid a large excess of sodium carbonate. Boil the mixture for about 5 minutes, and set it aside to allow the precipitate to subside. Collect the precipitate in a tared Gooch crucible, and wash with hot distilled water until the last washing is free from alkali. Dry the residue, ignite, and weigh. The weight of the zinc oxide thus obtained, multiplied by 2.254 indicates its equivalent of  $(\text{CH}_3\text{COO})_2\text{Zn}$ .

#### C-472—ZINC CHLORIDE

(U.S.P.)

**Assay:** Proceed as directed under Zinc Acetas, using about 1 gm of zinc chloride. The weight of zinc oxide obtained, multiplied by 1.675 indicates its equivalent in  $\text{ZnCl}_2$ .

#### C-473—ZINC OXIDE

(U.S.P.)

**Assay:** Digest about 1.5 gm of freshly ignited zinc oxide, accurately weighed with 50 cc of normal sulfuric acid until solution is complete. Then titrate the excess of sulfuric acid with normal sodium hydroxide, using methyl red T.S. as the indicator. Each cc of normal sulfuric acid is equivalent to 0.04069 gm of  $\text{ZnO}$ .

#### C-474—ZINC OXIDE, ALKALIS IN

Mix 1 gm of zinc oxide with 10 cc of hot distilled

water. Add 2 drops phenolphthalein indicator solution and titrate with tenth normal hydrochloric acid. 0.12 percent maximum as NaOH.

#### C-475—ZINC OXIDE, LEAD IN

(*Interim T. G. A. Method No. 19-A*)

Weigh 100 gm of zinc oxide into a 600 cc beaker, cover and add 325 cc of nitric acid (1:1). When solution is complete, add dropwise silver nitrate 5 percent solution to one drop excess in order to precipitate any chlorides. Cover and boil until the volume is about 200 cc. Without cooling, dilute to 500 cc with cold distilled water. This procedure removes all nitrous fumes and adjusts acidity. Stir the solution thoroughly, adjust temperature to 70-80° C, and electrolyze the solution for 4 hours with a current of 1 ampere. A platinum gauze cylindrical anode 2 in.  $\times$  1½ in. is used. The cathode is 18 gauge platinum wire wound in helical form. Before electrolysis the anode should be brought to a red heat in the oxidizing flame of a burner.

Wash the anode three times, the current being left on until the washing has been completed. Lower the beaker of electrolyte out from under the electrode and immediately replace it with a beaker of distilled water. Washing is accomplished by moving the beaker up and down several times. This operation is repeated twice with fresh water. Strip the lead from the electrode by immersing in hot (1:1) nitric acid. Transfer the solution to a separatory funnel and extract the lead as directed in Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists, fifth edition, page 399, paragraph 16-b. Follow with the colorimetric dithizone determination as in paragraphs 21 to 23.

#### C-476—ZINC PALMITATE

(*Metasap*)

The melting point of zinc palmitate is 103° C. The ash is 19.0 percent. Zinc palmitate is insoluble in polar liquids and partly soluble in non-polar solvents such as toluol and benzol. Responds to the test for Zinc G—470.

#### C-477—ZINC PHENOLSULFONATE

(*Zinc Sulfocarbolate*)  
(*N.F.*)

Zinc phenolsulfonate contains not less than 73.7 percent and not more than 77.4 percent of anhydrous zinc phenolsulfonate,  $Zn(C_6H_4OHSO_3)_2$  (411.70), corresponding to not less than 99.5 percent of the crystallized salt.

An aqueous solution of zinc phenolsulfonate (1 in 10) responds to the tests for zinc.

Ammonium carbonate T.S., when added in small portions to an aqueous solution of zinc phenolsulfonate (1 in 20), produces a white precipitate which redissolves completely upon the addition of an excess of the reagent.

An aqueous solution of zinc phenolsulfonate (1 in 100) is colored pale violet by ferric chloride T.S.

An aqueous solution of zinc phenolsulfonate (1 in 10) is acid to litmus paper.

**Assay:** Dissolve about 2 gm of zinc phenolsulfonate, accurately weighed, in about 100 cc of distilled water. Heat the solution to about 90° C and add sodium carbonate T.S., drop by drop, until all of the zinc has been precipitated. Avoid an undue excess of sodium carbonate. Boil the mixture for about 5 minutes and set aside to allow the precipitate to subside. Collect the precipitate in a tared filter, wash with hot water until the washings are free from alkali, dry, ignite, and weigh the zinc oxide. Each gm of zinc oxide is equivalent to 5.059 gm of  $Zn(C_6H_4OHSO_3)_2$ .

#### C-478—ZINC STEARATE

(*U.S.P.*)

**Assay:** Boil about 1 gm of zinc stearate, accurately weighed, with 50 cc of tenth normal sulfuric acid for 10 minutes, cool, and filter. Wash the filter and flask thoroughly with distilled water until the last washing is not acid to litmus paper, and titrate the excess of sulfuric acid with tenth normal sodium hydroxide, using methyl red T.S. as the indicator. Each cc of tenth-normal sulfuric acid is equivalent to 0.004069 gm of  $ZnO$ .

**Identification:** Heat 1 gm of zinc stearate with a mixture of 25 cc of distilled water and 5 cc of hydrochloric acid; fatty acids were liberated, floating as an oily layer on the surface of the liquid, and the aqueous layer responds to the tests for zinc.

**Reaction:** Zinc stearate is neutral to moistened litmus paper.

#### C-479—ZINC STEARATE

The melting point of zinc stearate is 120-125° C. The ash is 14.35-16 percent. Zinc stearate is soluble in commonly used solvents if heated above its melting point.

#### C-480—ZINC STEARATE, IN COSMETICS

(*Drug & Cosm. Ind.*, 33, 194, August, 1933)

Method for estimating zinc stearate in powders is based on solubility of stearate in benzene or trichlorethylene by continuous extraction under reflux, with subsequent ignition of isolated zinc salt and weighing as zinc oxide.

#### C-481—ZINC SULFATE

(*U.S.P.*)

**Assay:** Proceed as directed under zinc acetate, using about 1 gm of zinc sulfate. The weight of zinc oxide obtained, multiplied by 1.984 indicates its equivalent in  $ZnSO_4$ .

**ZINC SULFOCARBOLATE**  
See Zinc Phenolsulfonate C-477.

*(This is the concluding installment of the series. "Production Control and the Analysis of Cosmetics" will be available in book form in the near future.)*

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